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THE American Institute of Mining Engineers holds a meeting at Bethlehem, Pa., beginning May 18th.

THE Mechanical Engineers meet in Chicago, Grand Pacific Hotel, May 25th.

MR. J. S. PHILLIPS, whose departure for Australia was noted in the ENGINEERING AND MINING JOURNAL of September 12th, 1885, writes us that he proposes opening an office in Sydney, New South Wales, where he will be able to represent American mining machinery and appliances. Mr. PHILLIPS has had a vast and varied experience in mining matters. For twenty-five years in Cornwall and for twenty years in this country he has followed the profession; and it gives us pleasure to add, with a reputation for strict integrity.

THE annual report on the iron trade for 1885 has just been issued by the American Iron and Steel Association. We have already published most of the statistical figures of importance, from the advance-sheets of the *Bulletin* of the Association. We have many times expressed the general appreciation of Mr. SWANK'S good statistical work, and the present volume fully maintains the high standard already attained, while it is less cumbered with extraneous matter, about the value of which there may exist many different opinions.

THE London *Economist* refers to "the scandalous way in which 'guinea-pig' directors sell their names to unscrupulous promoters of public companies, to be used as a bait to attract unwary investors."

It appears some of these gentlemen (unfortunately, their names are not mentioned, else we would gladly publish them) have been held liable to pay for the shares that were given to them to qualify them to be directors.

Mr. Justice KAY is reported to have spoken as follows: "This was the common, vulgar, and inexcusable case of persons who were in 'the director market,' to be bought, and suffered themselves to be bought accordingly, thus assisting to launch companies which, in nine cases out of ten, came to ruin, together with the unfortunate persons who had been deluded into taking shares therein. These were shameful transactions; for the sale of a man's name for such a purpose was about as disgraceful a transaction as could well be conceived."

Certainly this practice has been fruitful in scandalous transactions connected with floating mines on the London market, and so far as we can do so, we will second the movement made by the *Economist* to make its disgracefulness public.

THE labor troubles throughout the country have already had a very mischievous effect upon business, though not to the extent some have believed. The collapse of the St. Louis strike, and practically also of that on the Third Avenue in this city, and the impending collapse of the bituminous coal strike, have done much to sober the heedless, while the murderous actions of the anarchist strikers in Chicago are rapidly disgusting all intelligent and patriotic men among the strikers with this way of settling differences with their employers. Our strikes and riots are never originated by Americans. It is always the scum of Europe; fanatical German socialists, ignorant Irishmen, Polanders, Bohemians, Italians, and others of this kind that create these outrages, and that are a far more mischievous element in the community than the Chinese.

We trust the law of the land will be promptly and unflinchingly enforced against all these anarchists and boycotters, even to the prompt hanging of those who have caused such a loss of life in Chicago. This unruly element must be treated to the swift justice that controls roughs and cut-throats in a Western mining camp. Any dallying with it is not simply childish sentimentalism, but it becomes a positive crime by encouraging criminals. We are pleased to see various organizations of American labor have already protested against the injury these foreign outlaws are doing the cause of the workingman and the good name of this country. We refer more at length to the eight-hour movement in another article.

NATHAN WALLER HORTON.

This well-known engineer died on Sunday, May 2d, in this city, from the effects of an accident that occurred to him two days before. He was directing the handling of some machinery at the Rand Drill Company's works, near Tarrytown, and was accidentally caught by a freight-car, and his left leg so severely injured that it was necessary to amputate it. Mr. HORTON was born at Wilkes-Barre, Pa., and in 1861 enlisted in the Ninth Pennsylvania Cavalry, and served with great gallantry through the war, attaining the rank of captain before he was taken prisoner and sent to Andersonville, from which prison he was one of the few to escape.

Mr. HORTON for the past thirteen years was connected with the Rand Drill Company, and became one of the best-known and most popular mining and mechanical engineers in this country. In our next issue, we shall publish a portrait of Mr. HORTON and a more extended notice of his life and professional work. Few engineers in this country were so widely acquainted or so deservedly popular, and his death is a severe loss to the profession and to a very large number of personal friends.

THE EIGHT-HOUR MOVEMENT.

During the past week, the labor organizations have given another exhibition of their widespread influence, even if they have not proved their power by complete success. For two years past, there have been muttered hints of an eight-hour movement. During the winter, it took form and shape in Chicago, as a definite demand to be put into execution on the first of May. Here, it was generally supposed that public opinion was to be propitiated in favor of the change before coercive measures were to be taken to enforce it. If such moderate counsels existed, they were overruled; for simultaneously with the demand fell the blow intended to terrify into acquiescence.

Of all times, this is the least propitious for so radical a change—now during a period of acknowledged depression, when wages are low and profits vanishing. Evidently, however, wages have been far above hardship limits, as funds have been accumulated in the treasuries of the various unions, sufficient not only to support the executives in time of peace, but to pay the cost of wars, as recklessly entered on as any war ever waged at the whim of a tyrant. Evidently also workmen disbelieve the employers' complaints of small profits; otherwise, they would not claim what they know the employers, if sincere, can not grant. Distrust, therefore, possesses both sides, and will continue until it is removed by fair and impartial investigation by both parties to the dispute. The machinery for such investigation has yet to be created.

The eight-hour movement differs from others that have preceded it, in that it is not based on a plea for remuneration merely in excess of bare sustenance, or for hours of labor to be limited to average human endurance. There have been times, and that within a few years, when wages were down to starvation limits, and there are vocations to-day in which the hours of work are in excess of those conducive to health and strength. But the strikers for eight hours make the demand with the avowed motive of increasing the number of employed 20 per cent by decreasing the hours of labor to the same extent. They have the honesty not to pretend that a man is overtasked by ten hours' work, and that therefore he will really do as much in eight hours as in a day of standard length. He intends doing only four fifths of the work he now does, and obliging the employer to engage one fifth more hands than at present. If for the moment he accepts a reduction in pay equivalent to the reduction in hours, he only acts on the principle of the Irish members of the British Parliament, who accept with acclamation what is offered, knowing full well that the more they get the more they can compel the giving of. In fact, the eight-hour movement, agitated as it has been, and forced so arbitrarily on the employers of labor by socialist rather than trades-union organizations, is the first step toward the realization of the socialist doctrine that, if the work of the world were equally allotted among all men, each man's share would be accomplished in three hours a day.

Another motive assigned is greater leisure for intellectual culture and amusement. As the prime movers are the Germans of the socialist order, we may assume that those who are most noisy and violent in their demands want the extra two hours for occupations that do not tend to self-improvement. The red flag always waves from beer saloons, not from public libraries.

It is to be regretted that the shortening of the hours of labor, in favor of which so much may be said, should be so summarily made a *casus belli*, and that the champions of the cause should be the anarchists. For, had the agitation been managed by the more orderly of the labor classes, and conducted with arguments instead of bombs, the public would undoubtedly have sympathized with and aided it.

That in this age of democracy, the safety of the state depends on the education of the masses is almost a truism. But the education that is to avail for that purpose is not a smattering of political economy, falsely so-called. It must be a leading up from mere skill in handicraft to a thorough, intelligent understanding and practice by every tradesman of his trade; an appreciation of the true principles of beauty in art, as applied to the craft of every craftsman; and above all, an apprehension of duty as a man, a member of the family and a citizen of the state. Now, let a man work hard for ten hours a day—up before six that he may be at his post by seven, and toil at his bench or his barrow till six in the evening, with but an hour's intermission for dinner, eaten cold and uncomfortably at the works, and he is not fit for much intellectual exercise after he has trudged back home and had his supper. If he does try to whet his wits, he is pretty sure to do so where he can at the same time wet his throttle, and that is just where he is most likely to imbibe also the doctrine of dynamiters. Undoubtedly, many men of intense will and ambition and of high intellectuality have educated themselves and risen to eminence from amidst such depressing surroundings. But the feats of the few never truly express the capabilities of the many. And we all know from our own experience and feelings how detrimental to intellectual activity and improvement is physical fatigue. Once, therefore, the machinery of trade and commerce has been adjusted to the eight-hour and half-holiday retrenchments, we believe the greater leisure enjoyed by the working classes will be an almost unmixed good; provided, always, that, with the curtailment of the hours of labor, there be provided the means of education—institutes like our Cooper's, workingmen's colleges like that organized in London by Maurice, art schools like the South Kensington and its myriad ramifications. Many among the workingmen would use their leisure amiss, but not a larger proportion than abuse their opportunities among the wealthier classes. Let any one visit the reading-room of the Cooper Union on Sunday afternoons, and he will derive some idea of the manner in which many workingmen will spend their leisure hours.

But such a great change as a general reduction in the hours of labor should be made with the full concurrence of all affected; and we believe the change could be so effected. The workingman can now speak through his union with the full assurance of being heard and attended to. He therefore should use the legitimate legislative methods that these organizations put within his reach before resorting to threats, still less violence. The old man-to-man relations of the employed to the employer are of necessity and unfortunately a thing of the past—when the small manufacturer worked with his own workmen and apprentices, and a common spirit and more or less identical interest actuated them all. Year by year, as the magnitude of industrial undertakings grows and the risks attending them increase, capital divides these risks among the many shareholders of joint-stock companies, and defines them by limited liability acts. Thus corporations tend more and more to absorb private enterprises, and the gulf grows wider between capital and labor, between the power that plans and directs and the power that executes. As this divergence increases, the members of the two classes becomes farther and farther alienated, and can touch only through their representatives. Hence, effective organization among the employers is necessary to meet and harmonize with the existing or improved organizations of the employed.

The beneficial effect of personal contact was admirably exhibited in the result of Mr. STEINWAY'S talk with his men; but it would be impossible for Mr. GOULD, for instance, to discuss Missouri Pacific affairs with his men, or for Mr. ADAMS to bring his individual influence on the employés of the Union Pacific; but if there were a board of arbitration, composed of the representatives of the employed and of the able, and in most instances, noble-motived men, who represent the owners of our great railroads, and thus the men, through their delegates, could come into personal contact with those ideal monsters and tyrants who represent the wage-paying power, a whole host of prejudices and falsities would be swept away, and such terrible crises as we are now passing through would be averted. In the case of any of our great corporations, the effect of personal intercourse between labor and the actual heads would be vastly more influential than conferences between the men and the managers, between whom there is too generally a high and wide barrier of distrust and dislike.

We are now in a state of industrial transition. But its genius for self government and the faculty by which the Anglo-Saxon race adjusts itself to changing circumstances will prevail; and order, we doubt not, will speedily evolve itself out of the confusion. Neither the American employer nor the American workman will be tyrannized over by foreigners, using foreign weapons and foreign methods, for every true American, be his rank in the great army of labor what it may, must now feel that he has to face a common enemy—an enemy who employs threats, not arguments, and fights with bombs, not with reason. The American workman should and will join hand in hand with every loyal citizen, in defeating with utterly crushing defeat the whole army of the revolutionists. Then all can and will join in discussing the merits of the eight-hour and of every other movement tending to the common good and happiness, and assuredly the workman will find all sections of the people—for the anarchists do not belong to us—willing to give full weight to his claims and to compel universal acquiescence, through the irresistible force of public opinion, in what is right and reasonable.

NEW PUBLICATIONS.

GEOLOGICAL SURVEY OF NEW JERSEY. *Annual Report of the State Geologist for the Year* Year 1885. Trenton. 1885. 8vo, 228 pages. Index.

This volume, like its numerous predecessors, bears witness to the steady, careful, and intelligent work conducted by Prof. GEORGE H. COOK, the veteran State Geologist. Satisfactory progress has been made on the topographical survey of the State; and of the beautiful topographical and geological map, in 17 sheets, on a scale of one inch to the mile, ten sheets have now been published. In the field of structural and lithological geology, this report contains a very interesting and well-considered summary of conclusions, as well as some new observations. In the study of the Archæan rocks, eleven section-lines, about five miles apart, have been followed across the Highlands from southeast to northwest, and the opinion set forth in last year's report has been confirmed, namely, that the four geographical belts formerly distinguished in the New Jersey Archæan as the Ramapo, Passaic, Musconetong, and Pequest belts have

no geological basis of classification, since "the rocks of one belt might almost pass as representative of them all." Moreover, the subdivisions of the Archæan proposed in Canada and New England do not appear, according to Professor COOK, in New Jersey. The stratified Archæan rocks of that State seem to be Laurentian. There is no parallel there for the Huronian quartzites, chlorites, and talcose schists, nor can the Norian and Montalban series be identified. Since it is not likely that this fact indicates an entire absence in New Jersey of rocks contemporaneous with those which have received these names farther north and east, another conclusion is drawn from it by Professor COOK, namely, that "lithological distinctions alone are of little value in the (chronological) classification of crystalline rocks;" an opinion in which we heartily concur. Careful and patient field observations, such as Professor COOK has been making for many years, are absolutely necessary, to give validity to arguments based on lithological characters. The result of such inquiry we give in his own words:

"Up to the present time, we are unable to divide the New Jersey Archæan further than to say that the massive or laminated and heavily bedded granulites, quartz syenites, etc., geologically underlie the well-stratified gneisses, hornblende schists, talc schists, crystalline limestones, ophiolites, graphite, etc., which consequently constitute a newer series; possibly the schistose rocks, gneisses, and pegmatites of the northwestern border of the Highlands may constitute a distinct member of this newer series, as they are lithologically somewhat different from the well-stratified rocks elsewhere found in the Highlands, though this is a difference of degree rather than kind. We can not reasonably hold that all are more than parts of a single geological system, which answers very well to the Laurentian. We may perhaps say that we have a lower and an upper Archæan series; but between these we can at present draw no exact lines."

The contact between the Archæan and the Paleozoic rocks is two-fold. There are abundant proofs that the Potsdam sandstone is distinctly unconformable to the Archæan rocks, or, in other words, that it was formed from their *débris* and deposited upon them after they had been considerably tilted. But along the southeastern margin of the Highlands, extending from Peekskill Hollow across New York and New Jersey into Pennsylvania, is a belt of Silurian quartzites and hydro-mica slates, which appear to be much more nearly conformable to the Archæan; and it is therefore to be inferred that along this line the earlier formation was not greatly folded before the newer rocks were deposited upon it, and that subsequently all were folded and uplifted together.

Perhaps the most important part of the report before us is its careful and suggestive discussion of the changes in the Atlantic coast-line and coast-level, within recent geological periods. An examination of the tide-marshes, the alluvial deposits near the coast, the beaches, terraces, and yellow fossiliferous gravel, and the exposures of the lower Tertiary and Cretaceous formations, gives evidence that a change in the relative level of the sea and the land is now in progress, the sea rising upon the land; that, preceding this present advance of the sea, there was a movement in the opposite direction, so that land in which stumps are now found below tide was continuously above sea-level, permitting trees to grow; that before this again there was an encroachment upon the upland. The quantitative determination of the periods and amounts of these movements still remains to be achieved; but the pages before us show that the right method has been adopted and no little progress has been made. With regard to the present state of affairs, it is conclusively shown that there has been a general subsidence of the coast or rise of the water-level to an extent of from ten to twenty feet within a short period of geological time, at a rate not yet quite definitely determined. The encroachment of the salt marshes upon the upland during the present generation can be clearly observed; and such relics as old "corduroy" roads and bridges and "shell-mounds" of aboriginal origin are found several feet below tide, in these marshes.

Professor COOK cautiously abstains from declaring that the successive relative changes of sea and land level are due to the rising and falling of the land alone. This is undoubtedly the more probable hypothesis at present, and perhaps the only one to which the evidence points. If the sea were always advancing, and not alternately advancing and receding, or if the movement either way were traceable all over the world at the same period, we might argue that unknown changes of the ocean-bottom were playing a part, or that the ocean, itself a great lake without an outlet, was exhibiting, like other salt lakes, the effects of the fluctuating relation between rain-fall and evaporation; although, even in the absence of definite annual measurements, it would be scarcely conceivable that meteorological fluctuations would produce cycles of such extent as to fit the slow periods of continental change. But all such surmises seem to be excluded by the evidence that some coasts are emerging while others are sinking; so that changes of sea level, if they take place at all, are not appreciable in comparison with the greater movements of the land.

A different category of facts bears on the important question of the changes of the coast-line, showing that there is a general wear on the east shore of the beaches, and also a westward movement, by wind and wave, of the beach-sand, so that most of what were formerly sand reefs are now mere accumulations of blown sand on the surface of former tide-marshes. There are local instances of eastward growth (the effect of local and temporary currents); but the general result on the east shore is an absolute loss, in spite of these relative gains.

The chapter on Economic Geology contains an excellent account of the artesian wells of the State, with observations which can not fail to be valuable guides to the projectors of such enterprises.

Under the head of Forestry, highly significant statistics and suggestions are presented. It has long been recognized by real experts in forestry that the art could not be successfully introduced here, until the planting and cultivation of timber could be made commercially profitable. To abstain from wasteful cutting of timber, and to enforce measures for the prevention of forest-fires, is not forestry; it is but the beginning of an approach to that scientific handling of forest resources which combines planting, protection, and continuous, regulated cutting, so as to make of the forest a perennial source of revenue, without destroying the productive capacity of the land, or exterminating valuable species of timber through ignorant culture. The time appears to have arrived in several parts of the country, and notably in New Jersey, when experiments in forestry can be undertaken for commercial purposes. Professor SMOCK'S recommendation of the cultivation of locust timber on the 250,000 acres of waste land of the Cretaceous formation in New Jersey is a case in point. That such culture will be fairly profitable, upon the maturity of the timber, is now beyond doubt. The one element that remains to be secured, in order to give the industry a sure footing, is such a general recognition of its security as will result in a progressive annual increase in the market value of growing timber; so that a man embarking in such an enterprise need not feel that, unless he waits and spends for twenty-five or thirty years, his investment will be practically worthless. At present, as a general rule, it may be said that land covered with timber nearly or quite ready to cut has an increased value, but that there is no proportionate market value for timber only half-grown.

Considerable space is devoted to an historical account of the several geological surveys of the State, from 1835 down, and of the contents of the annual reports.

Professor COOK'S statistics of the product of iron ore show 330,000 tons for 1885, as against 393,710 for 1884. The falling off since 1882, when the reported product was 932,762 tons, is very marked. It is, however, not due to exhaustion of the mines, but to the development of other sources of supply, and particularly to the great increase of the Bessemer industry, for which, as it is practiced in this country, the New Jersey magnetites do not, as a rule, furnish a suitable raw material.

The maximum product of zinc ore in the State was 56,085 tons in 1883; it declined to 40,094 tons in 1884; and in 1885, it was only 38,526 tons.

CORRESPONDENCE.

[We invite correspondence upon matters of interest to the industries of mining and metallurgy. Communications should invariably be accompanied with the name and address of the writer. Initials only will be published when so requested.
All letters should be addressed to the MANAGING EDITOR.
We do not hold ourselves responsible for the opinions expressed by correspondents.]

The New Plant of the Sierra Grande Company, at Lake Valley, New Mexico.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: It is not of much importance what reports mining journals other than yours have to say about any professional subject; but so many misstatements have been made public concerning the condition of the new plant at Lake Valley when Dr. Endlich left it on the first of this month, and Mr. Hadley took his place, that I send you some particulars, lest you too be misled. Naturally enough, it is painted a grand triumph, notwithstanding the fact that up to the first of the month no successful method of saving or chloridizing of flue-dust had been used. The raw flue-dust was piled up in sacks by the hundreds in the mill. There appears to be no difficulty in extracting from 80 to 85 per cent of the pit charges; but the introduction of flue-dust always brings results down accordingly. The figures taken from the books, which I have had an opportunity to verify, show that the cost of treating 1250 tons up to the time of Dr. Endlich's departure was $19,013, or $15.21 a ton, besides loss of silver values in flue-dust. Of course, this covered the experimental period, and the cost was reduced toward the latter part of the same period. Faulty construction of machinery, no flue-dust chambers of adequate size, and expensive manner of purchasing supplies, are said to be responsible for this exorbitant cost of treating.

The Russell process appears to be all that is claimed for it at Lake Valley, and I believe the cost can be reduced there to $7 a ton; but this, probably, will require reconstruction of the roasting-furnaces and the erection of proper dust-chambers, together with other changes in the mechanical department of the mill. I understand the mill is closed down at present, making some of these changes.

The treatment of the low-grade Lake Valley ores has already attracted much attention, and it is to be hoped that Mr. Hadley, the present manager, will be able to carry to a successful issue the problem that Dr. Endlich attacked intelligently, but had not the opportunity to carry forward to the point where success could be predicted. SIERRA.

Concentrating the Leadville Lead-Zinc Ores.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: Rather more than a year ago, there appeared in the columns of the JOURNAL several communications regarding making commercially available the low-grade sulphide ores of Leadville. We then ventured to estimate what results might be expected in the direction of mechanical concentration, and are now able to confirm those estimates by the

figures of actual work accomplished in the Colonel Sellers mill on ore deemed utterly worthless six months ago.

This mill was designed and built by us during the fall and early winter, and began work about January 20th. The machinery includes a medium-size Blake ore-breaker, two pairs 14 by 27 crushing-rolls, six modified Cornish jigs, with separate sizing trommel for each, one Triumph table, and all necessary elevators and sizing apparatus. To the plant there will shortly be added a Frue vanner for treating a special class of slimes. Electric light (incandescent) is used throughout the mill, making night work almost equal to that done by day. Motive power is furnished by a Buckeye automatic cut-off engine with Babcock & Wilcox safety boiler, which also supplies steam for heating purposes in cold weather. This power has proved most economical, the whole mill having run 31 double shifts in March on 40 tons of coal. From 75 to 90 tons of ore are treated daily, at a cost of about 70 cents a ton. The lead headings average 55 to 60 per cent lead, and the zincs, tailings, assay under 2 per cent of lead. The average ore treated carries less than 10 per cent of lead and 9 or 10 ounces of silver. The cost of mining and delivering it at the mill is more than covered by $1.25 a ton.

Leadville sulphide ores are by no means all alike, the galena in some being very fine-grained and intimately mixed with the pyrite and blende, while in other ores, frequently within a few feet of those of finer grain, there occurs quite coarse cubical galena. To provide for the former class, comparatively fine crushing and very close sizing are necessary. To show what can be accomplished with care and under the most favorable circumstances, we give analysis (kindly made by Mr. William H. Keeler, of Leadville) of the work of one of the medium-size jigs running on ore of the coarser-grained variety:

	Ore.	Galena.	Pyrites.	Blende-tailings.
Ag, ounce	7·500	19 800	5·200	3·000
Pb, per cent	16·185	79·958	9·592	3·525
Fe, "	22·951	2 303	39·431	10·864
Zn, "	19·246	1·734	3·043	47·522
Mn, "	1·664	·154	·406	1·477
S, "	39·240	15·760	48·196	37 040
SiO_2 "	·960	·120	·199	1·090

Traces of Cu and As in ore and pyrites.

Without going into wearisome details of cost, we may say that the net profits of the March and April work of the mill have much more than repaid the total cost of the concentrating plant, which fact, we believe, may fairly be taken as proof of the solution of the problem of making the low-grade (in silver) sulphides of Leadville *pay*, and much credit for the demonstration should be given to the enterprising owners of the Colonel Sellers mine. Respectfully yours, TAYLOR & BRUNTON.

NEW YORK, May 4.

Fume Condensation and Lead Furnace Slags.

EDITOR ENGINEERING AND MINING JOURNAL:

SIR: I am a constant reader of your paper, and as manager of the largest lead-works in this country, I am specially interested in all articles and letters that you from time to time print concerning lead-smelting, fume-condensing, etc.

Latterly, several interesting communications on these matters have appeared in your columns, which induces me to beg your permission to make a few comments and ask a few questions in the hope that useful information may result for others as well as for myself.

In your issue of March 13th, you have an article by Mr. F. L. Bartlett on electric fume condensation, and on the Lewis-Bartlett process.

Concerning the electrical experiments that Mr. Bartlett recounts, I may say that in all practical respects they are identical with those made here on Mr. Walker's process. Mr. Bartlett, however, does not appear to be very hopeful as to final commercial success, whereas we here are still at work to overcome the many little hitches and difficulties encountered in experimenting in such a new direction, and look forward to successful results. Our first trials on the small scale were so very encouraging that, as you are aware, Mr. Walker took out patents in several countries. Our large machine now here is even more powerful than that made for Mr. Bartlett, and sparks taken from it would assuredly do a good deal more than "unjoint one's fingers." Our zeal for the experiments has, however, not yet led us to take a spark, and is not likely to do so.

The great difficulty appears to be to secure such insulation from the machine to the discharging points as shall prevent loss in the form of "leakage." We have had all to learn in this matter. Arrangements that were supposed, on the highest scientific authority at our command, to be quite efficient, were found in practice to be so far wrong that, when our machine was working splendidly, we got only the merest trace of a spark from our discharge-points, a few yards away. We have largely overcome this difficulty, and are now at work on a new series of experiments on the actual works-flues.

Much has been said lately about the Lewis-Bartlett bags, and several people have come forward in your paper to praise this arrangement as some hing very like perfection for the condensation of lead-fumes. Personally, I have no knowledge of the working of the bag process; but granting that it is doing good work under some conditions, as stated, I can not help being deeply skeptical as to its applicability in any large works using reverberatory furnaces. So far as I can gather, from letters and articles I have seen, the bags have only been used in connection with "Jumbo" furnaces, or, in other words, enlarged and modified Scotch ore-hearths. These hearths, of course, send cooler gases into the flues than any other form of lead furnace except very tall cupolas or blast-furnaces. Also it is a fact, well known to all conversant with work in ore-hearths, that the great amount of fume they send off is peculiarly easy to condense, as compared with that resulting in any other lead-smelting apparatus. It is stated that no trouble is found in cooling the gases to such a point as to allow of the use of the bags, and doubtless this is true as regards ore-hearths and high cupolas. But how about the many works in this country and elsewhere, where the work is mainly done in reverberatory furnaces? Will any body say whether efficient cooling and artificial draught, that is to say, draught depending wholly on mechanical exhaust, have ever yet been applied in connection with a group of several reverberatories and woolen bags? At this works, we have always from sixteen to eighteen furnaces at work. Our flues are over two miles long, seven feet by six feet section. A very slight inspection of the temperature in this flue, at long distances from the furnaces, would at once shake any body's belief in the possibility of *economically* cooling our gases, so as to be able to pass them through the bags, in any such short and compact apparatus as would justify the great and special claim of the Lewis-Bartlett process to "do without the use of long flues." I speak only of the cooling question. There still remains the question of running a large works with mechanical exhaust. Any body who has had experience in this line will know what I mean. I have had much of such experience on my own account, and have shared in that of others, and my opinions on the matter are decidedly gloomy. If any of your readers can and will give information as to the successful carrying on of such work, under conditions such as I have indicated, I should be very glad to hear of them.

Mr. F. L Bartlett doubts whether the "bag" process would hold as a patent. The use of textile fabrics as filters would not hold, but perhaps the special form, as bags, might prove unassailable if any body desired to assail it. But it seems to me that the bags would not be the best form in which to use woven materials. There is already one other process at least, that appears to me more practical, granting that such material is used at all. Messrs. Cowper and Sopwith patented condensing apparatus in 1882 (Patent No. 1625) that would do the work as well as, or better than, the Lewis-Bartlett bags, having regard to cost of installation and facility of working.

WHITE LEAD FUME PAINTS.

The Lewis-Bartlett process is supposed to be very valuable for condensing fume for making paint. In this country, there is a company at work on it, and the material is offered for sale as "sublimed white lead." The most exaggerated and absurd claims are made for it. It is stated to equal or even excel the best white lead. This is simply not true, as any painter can find out by trial. It is a good paint for many purposes, but not to be compared with good white lead in many most important respects. And, good or bad, it is not in any way new. Smelters' fume has often been used for paint. The dark-colored, bluish-gray material, as it comes from the flues of most smelting-works, can be manufactured directly into a very good paint for darker colors. Some years back, Mr. A. French took out a patent for making paint by catching fume from a cupola in the condenser, of which he and Mr. Wilson are the joint patentees. The cupola was worked with hot-blast, and the whiteness of the fume was secured by blowing in an excess of air at the flaming top, and so obtaining complete combustion of all the carbonaceous products. This fume was, of course, identical with the Lewis-Bartlett product, the only difference being that it was caught under water. It was beautifully white, and was, of course, declared to be "superior to the best white lead" in color, in body, and in all other desirable qualities. Yet its commercial success does not appear to have been great, judging by the fact that patents have since been taken out by Mr. French for its conversion into black paint, and into another form of "white lead" as oxy-chloride, which latter is another *very* old idea as a rival to white lead, and failed completely many years since.

At this works, we are at present making a perfectly white product from some of our fume, which is being ground to paint at the paint mills of the firm, and which we can offer in any quantity to any body who wishes to use it, at a low price as compared with white lead. We do not pretend to any mystery about it. It is white smelter's fume, and nothing else. It makes a good paint for many uses, and is just the same as French's, or the "sublimed" white lead. It will never supplant white lead. None of these new materials that are cropping up now in such abundance, and which are praised so much in advertisements, ever *will* supplant it. They get tried more or less (usually less), and those who have tried usually go back to good old "Dutch process" white lead, and stick to it.

Mr. Iles's series of articles on Flue-Dust have been of much interest, as giving a *résumé* of what is so far known, and what has been done in the matter of condensation. And the result appears, so far, to be that we are pretty much "as we were," and that, unless the "bag process" proves as good as its friends claim, or unless electricity finally proves a big success, the only cure for the evil lies in long flues.

LEAD FURNACE SLAGS.

Mr. Iles has also given us very interesting articles on slags, and I must offer him my sincerest compliments on the amount of skill and study he has brought to bear upon this matter. It appears that the larger American works, or some of them, by no means believe in the rule-of-thumb work that prevails so largely in many of the works this side the water. Unfortunately, the laws and rules that Mr. Iles is convinced regulate lead slags, and in which we all believe, have not yet yielded themselves captive to any of us, and as regards some of the main points in the running of furnaces, we are just where we have always been, in spite of years of experience and observation. For instance, I am at this present time carefully watching the running of a very large so-called "Pilz" furnace that I built a few months since. It works splendidly, and for weeks at a time has given me a daily yield of lead within a few hundred weights over or under 20 tons. But when it one day gives me bad slags, and the following day gives me good slags, and all from the very same mixture-bed, same coke, same blast, and no difference in any symptoms that the closest scrutiny can detect, I look in vain for "rules and laws," and it is some consolation to my self-respect that no better reward has followed the studies of Mr. Iles, who has devoted an amount of time and labor to this special subject far beyond that which I have been able to give. If, however, the much desired laws are ever to be formulated, it will only be by careful and continuous work such as Mr. Iles has done, and those of us who have not the time and opportunity to do it can only thank and encourage those who can and do carry it on. Yours,

DEE BANK LEAD-WORKS, BAGILLT, NORTH WALES. W. M. HUTCHINGS.

Rail Contract for the Italian Mediterranean Railroad.—The second calling in of tenders for this contract of 28,000 tons of rails shows lower offers. The minimum tenders are 14 lire lower than the first, being 105 lire free at Italian ports. The other tenders range up to 110 lire. Among the firms that tendered lowest are those of F. Krupp, of Essen, with an offer for two lots; the Belgian firm of Cockerill; and the English firm of Bolckow, Vaughan & Co.

NATURAL GAS VS. COKE AND COAL.

Mr. S. A. Ford, chemist of the Edgar Thomson Steel-Works, publishes a paper in the *American Manufacturer* from which we make the following extracts :

So much has been claimed for natural gas as regards the superiority of its heating properties, as compared with coal, that some analyses of this gas, together with calculations showing the comparison between its heating power and that of coal, may be of interest.

These calculations are, of course, theoretical in both cases, and it must not be imagined that the total amount of heat in a ton of coal or in 1000 cubic feet of natural gas can ever be fully utilized. In making these calculations, I employed as a basis what in my estimation was a gas of an average chemical composition, as I have found that gas from the same well varies continually in its composition. Thus, samples of gas from the same well, but taken on different days, vary in nitrogen from 23 per cent to nil, carbonic acid from 2 per cent to nil, oxygen from 4 per cent to ·4 per cent, and so with all the component gases.

Before giving the theoretical heating power of 1000 cubic feet of this gas, I will note a few analyses. The first four are of gas from the same well, samples taken on the same day that they were analyzed. The last two are from two different wells in the East Liberty District.

I also give a few analyses of Siemens producer gas. The immense heating power of the natural gas over the Siemens may be seen at a glance, when compared volume for volume :

NATURAL GAS.

	1.	2.	3.	4.	5.	6.
When tested	Oct. 28, 1884.	Oct. 29, 1884.	Oct. 24, 1884.	Dec. 4, 1884.	Oct. 18, 1884.	Oct. 25, 1884.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
Carbonic acid	·8	·6	nil.	·4	nil.	·3
Carbonic oxide	1·0	·8	·58	·4	·1	·6
Oxygen	1·1	·8	78	·8	2·10	1·20
Olefiant gas	·7	·8	98	·6	·8	·6
Ethylic hydride	3·6	5·5	7·92	12·3	5·2	4·8
Marsh-gas	72·18	65·25	60·70	49 58	57·85	75·16
Hydrogen	20·62	26·16	29·03	35·92	9·64	14·45
Nitrogen	nil	nil.	nil.	nil.	23·41	2·89
Heat units	728,746	698,853	627,170	745,813	592,380	745,591

SIEMENS PRODUCER GAS.*

Carbonic acid	3·9	8·7	9·3	1·5	6 1
Carbonic oxide	27·3	20·	16·5	23 6	22·3
Hydrogen	.....	8·7	8·6	6·	28 7
Marsh-gas	1·4	1·2	2·7	3·	1·
Nitrogen	67·4	61·4	62·9	65·9	41·9
Heat units	93,966	97,184	99,074	114,939	164,164

One hundred liters of average natural gas will weigh 64·8585 grams, thus :

	Liters.	Grams.	Heat-units.
Marsh gas	67·6	48·0256	627,358
Olefiant gas	1·0	1·2534	14,910
Ethylic hydride	5·0	6·7200	77,679
Hydrogen	22·0	1·9712	67,939
Nitrogen	3·0	3·7652	.....
Carbonic acid	·6	1·2357	1,808
Carbonic oxide	·6	·7526	.....
Oxygen	·8	1·1468	.....
Total		64·8585	789,694

One hundred liters of this gas will weigh 64·8585 grams; 1000 cubic feet will contain 210,069,604 heat-units ; and will weigh 265,887 grains, or, in round numbers, 38 pounds avoirdupois, and contain 139,398,896 heat-units ; 57·25 pounds of carbon will contain the same number of heat-units as the 1000 cubic feet of the natural gas, namely, 210,069,604.

If coke contains 90 per cent carbon, 62·97 pounds of coke equal in heat-units to 1000 cubic feet of natural gas.

Then if a ton of coke, or 2000 pounds, cost $2.50, 1000 cubic feet of gas is worth 7·8 cents for its heating power.

We will now compare the heating power of this gas with coal, taking as a basis a coal slightly above the general average of the Pittsburg coal, namely :

Carbon	82·75
Hydrogen	5 31
Nitrogen	1·04
Sulphur	·95
Oxygen	4·64
Ash	5·31

We find that 54·4 pounds of this coal is equal in its heating power to 1000 cubic feet of natural gas, and at $1.20 per ton of 2000 pounds, 1000 cubic feet of gas is worth for its heat-units 3¼ cents ; 1 ton of coal is equal to 36,764 cubic feet.

In these calculations of the heating power of gas and coal, no account is, of course, taken of the loss of heat by radiation, etc.

In collecting samples of this gas, I have noted some very interesting deposits from the wells. Thus, in one well the pipe was nearly filled up with a soft, grayish-white material, which proved on testing to be chloride of calcium. In another well, soon after the gas vein had been struck, crystals of carbonate of ammonia were thrown out, and upon testing the gas, I found a considerable amount of that alkali, and with this well no chloride of calcium was observed until two months after the gas had been struck.

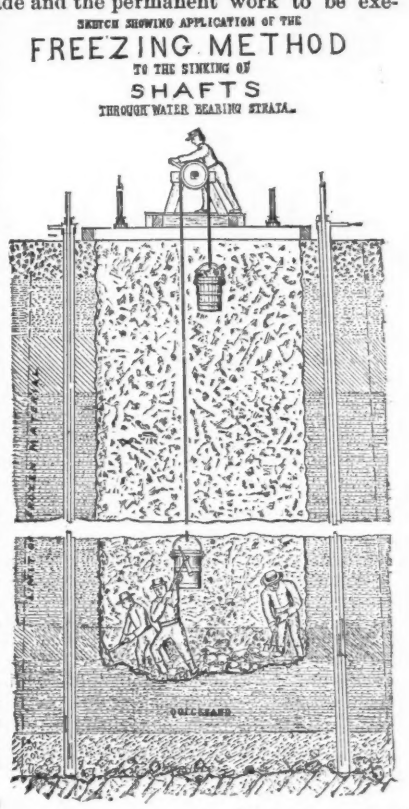
Discovery of Quicksilver Mines in Russia.—A very important discovery of cinnabar mines has been recently made in the mining region of the Don, Russia. The ore is stated to contain from 69 to 80 per cent of pure mercury.

The Steel Rail Trade.—*Kuhlow's German Trade Review* for April 21st says : "We hear that an agreement has been, or is to be, come to between German and English steel rail works for mutual protection in their respective countries." How far this will mend the broken ring is not apparent.

* See Vol. XI., p. 300, Transactions of American Institute of Mining Engineers.

THE FREEZING METHOD OF SINKING SHAFTS THROUGH WATER-BEARING STRATA.

The freezing method for sinking shafts and making excavations for the foundations of bridges and buildings, and for constructing subaqueous tunnels, sewers, conduits, etc., and for the execution of all sorts of works in quicksand and other water-bearing and soft soils, invented and successfully applied by Mr. Poetsch in Germany, is a very valuable contribution to engineering science. The method consists simply, as has been described in these pages, in freezing the material about the space to be excavated, and thus converting it temporarily into a solid wall, which permits the excavation to be made and the permanent work to be executed with ease and safety. In some instances, the entire mass through which the work is to be carried is frozen, and the work done as it would be in solid rock.



The freezing is accomplished by passing double pipes at suitable intervals through the material to be frozen, and then circulating brine, cooled in a tank by an ice-machine to a very low temperature, through these pipes. The brine goes into the inner pipes, which are open at the end, and returns through the space between the inner and outer pipes, the latter being closed at the end. The heat is thus taken from the surrounding material until it is frozen to the desired thickness. The returning brine flows into the tank, where it is again cooled. Several shafts have been successfully sunk by this process in Germany, through quicksand and other troublesome materials ; and one in Belgium, at Houssu, to a depth of 224 feet ; all quicksand below a depth of thirty feet from the surface. In that vicinity, very large sums of money had been expended in unsucessful attempts to sink similar shafts by other well-known and approved methods.

The process is an absolute one, and the cost of works to be executed by it can be closely determined in advance. Shafts, wells, foundations, tunnels, sewers, conduits, and similar works can be done at almost any depth by this simple, safe, and efficient method ; and for such works as might endanger existing buildings or structures of any kind, such as subterranean works in cities, or the repairs or strengthening of foundations, it is peculiarly reliable and valuable, as all movement of the surrounding materials is absolutely prevented.

The American patents have been purchased by the Poetsch-Sooysmith Freezing Company, of New Jersey, whose address will be found in our advertising pages, and numerous important patents covering improvements and peculiar applications of the method and novel appliances for doing works of various kinds have been taken out. The company has also provided ample machinery and capital, and is ready to furnish plans and estimates, and to enter into contracts to do work of the kinds alluded to in any locality.

German Portland Cement.—The sale last year of the Hemmoor Fabrik was 277,435 barrels, or 24,946 barrels less than in the preceding year. The production was 309,090 barrels, against 287,138 barrels in 1884, so that at the end of the year there was a stock of 63,740 barrels. The directors complain that prices are this year rather depressed.

Copper Mining in New South Wales.—It is not generally known that copper mining is largely carried on in New South Wales, where there are several extensive mines, the most important being the Great Cobar, 497 miles west of Sydney, in the center of the vast plains that lie between the Macquarie and the Bogan river. The ore is so rich and abundant that the industry has been a very profitable one until a very recent period, notwithstanding the great distance of the mine from the settled portion of the colony. The produce of the mine has to be hauled by wagons a distance of eighty miles to Nyngan, the nearest railroad station. The industry has caused a large settlement to spring up at Cobar, and it is estimated that within a radius of three miles the population is between 3000 and 4000. The Great Cobar mine gives employment to about 900 persons. The plant is the best in Australia. The company working the mine at present experiences great difficulty in getting the copper to market. Sometimes metal to the extent of 500 tons is kept waiting for teams to carry it to the railroad station. The number of miners employed in the Cobar District at the end of 1884 was 1802. The amount of refined copper produced during the year was 4765 tons. During the year 1884, the Great Cobar Company raised 21,561 tons of ore, and smelted 23,899 tons, yielding 2769 tons of fine copper. At the end of the year, the company had ready for smelting 1000 tons of 10 per cent ore, 5000 tons 8 per cent, and 2233 tons 5 per cent. Up to the close of 1884, the company had smelted 122,795 tons of ore, the average yield of which was 13·17 per cent of fine copper. The greatest depth of the main shaft is 564 feet, and from that diamond drills have been sunk 60 feet farther. The lode at this depth shows a thickness of 40 feet of fair yellow sulphide ore.

MITIS IRON CASTINGS AND THE NOBEL LIQUID FUEL FURNACE.

We have several times referred in these pages to the ingenious process by which "Mitis castings" are made, and the all-important *rôle* that aluminium plays in it. The interest the question has excited among metallurgists makes welcome all the information that can be given.

In the paper read before the American Institute of Mining Engineers at Pittsburg, in February last, Mr. Ostberg said that the manufacture of wrought-iron or mitis castings depends upon several very important matters besides the necessary skill of the workman.

1st. It is necessary to have a suitable metal as raw material.

2d. An efficient and suitable furnace for smelting, so as not to injure the metal.

3d. Facilities for handling the metal from the time it is ready in the furnace until it is poured into the mold.

4th. A suitable molding material.

And in each of these Mr. Ostberg claimed, for himself and associates, to have made great improvements essential to the successful manufacture of castings from wrought-iron or low-grade steel.

Mr. Ostberg's paper did not refer much to the first essential; but from a pamphlet that gives reports on mitis iron castings, by Mr. E. A. Cowper and Mr. C. E. Cowper, and a paper by Mr. T. Nordenfelt, we take some of the following notes:

1st. *A Suitable Metal.*—All authorities agree that the same iron that is good in wrought-iron is good in mitis castings, and that which makes poor bar iron makes poor mitis castings; 0·20 of phosphorus is said to be the limit allowable; but the purer the metal used, the better.

It is not claimed that this process alters or improves the iron beyond making it denser and eliminating slag, thus giving wrought mitis castings a somewhat greater strength than the wrought-iron from which they are made.

As our readers know, the mitis process consists in melting wrought-iron in ordinary graphite crucibles, and adding to the molten metal a small amount (about ·05 to ·10 per cent) of aluminium in the form of an alloy of aluminium and iron, which reduces the melting-point of the fused metal several hundred degrees, and thus makes it more fluid, and gives time for handling it before it will solidify.

The use of aluminium in iron or steel is not new. In the first American edition of the Edinburgh *Encyclopædia*, 1832, page 468, in speaking of Wootz steel, it is said that "Wootz steel has been more recently (1819) examined by Mr. Faraday. In 460 grains, he found, besides carbon and iron, 0·3 of a grain of silex and 0·6 of a grain of alumine The best English steels submitted to the same experiments yielded no earths. Mr. Faraday attempted in vain to imitate Wootz, although he obtained specimens of iron giving abundance of silex and alumine by analysis." "On a future occasion, however, he was more successful. An alumine alloy was obtained of a white color, a close granular texture, and very brittle. It contained 6·4 of alumine. With 67 parts of this alloy, 500 grains of good steel were fused, and formed a perfectly malleable button which forged well and gave the beautiful damask peculiar to Wootz by application of dilute sulphuric acid. This specimen had all the appreciable characters of the best Bombay Wootz. Hence Messrs. Stodart and Faraday were of the opinion that Wootz issteel accidentally combined with the metal of the earths."

Spon's *Dictionary of the Mechanic Arts*, page 50, Div. I., says: "This metal (aluminium) has been observed alloyed with iron, in Indian steel, and it has been said that the excellent qualities of that steel are owing to its presence. Experiments have been made with this view, and have shown that iron combined with aluminium is remarkably strong."

Knight's *Dictionary of the Mechanic Arts* says: "An alloy of ¾ iron and ¼ aluminium does not oxidize when exposed to a moist atmosphere."

In Division VI., Spon says: "It is certain that all iron smelted from clay (aluminous) ores is stronger than that smelted from any other kind of ore, particularly in the form of wrought-iron."

The best ordnance cast-iron used by the United States government, analyzed under the direction of Major Wade, contained ·28 of 1 per cent of aluminium. Its specific gravity was 7·22, and its tenacity 31,734 pounds per square inch. (*See* Thurston's *Materials of Engineering.*)

The Wittenström American patent, No. 333,373, claims the addition of the aluminium ·20 and ·10 per cent *after* the iron is melted, with the object of reducing or lowering the fusing-point.

Whether this constitutes a valid claim, it is not in our province to decide.

2d. *The Nobel Liquid Fuel Furnace.*—The furnace used by the mitis casting patentees is a liquid fuel furnace, patented (Patent No. 321,840) by Ludwig Nobel, of nitro-glycerine and petroleum fame. Although we have already described this furnace in the ENGINEERING AND MINING JOURNAL, we now illustrate it for the benefit of those who may have occasion to use its peculiar features.

The following are the description and claims taken from the patent:

"In Figs. 1 to 8, inclusive, *a a* is the body of the furnace. *b b' b²* are crucibles containing the metal to be fused. The crucibles *b* in the compartment of the body of the furnace nearest the entrance of the flame are receiving the final heating previous to pouring. The crucibles *b' b²* in the farther compartments are situated to receive a preliminary heating, and will be shifted to the position of the crucibles *b* when these are moved from the furnace. *c* is the chimney. The fire-box *d* (*see*, also, Figs. 4 to 6) has an aperture at the front, into which the fire-bars *f f* are built. They are iron troughs placed one above the other. The number may be varied. Five fire-bars are represented in the drawings, of which the top one is not used as a fire-bar, but only for feeding and as a guide for the air.

"*h* is a pipe by which the naphtha or liquid fuel is supplied. It enters, first, into the pan *f'*, forming part of the uppermost fire-bar, and it overflows from this pan by the short pipe f^2 into the pan *f'* of the fire-bar beneath. The fuel flows from this pan by the perforation f^3 into the main trough-like cavity f^4 of the bar, which it fills to the level of the mouth of the overflow f^2. The surplus liquid descends by this overflow to the pan *f'* of the bar below, and it fills the main cavity to the level of the overflow. The overflow from the lowest bar of the series is received into pipe *i*, and is thereby led away into any suitable receptable. The supply of liquid fuel should always be in excess of that which is consumed and evaporated upon the bars.

"Although the fuel is ignited where it lies in the cavities f^4 of the bars, nevertheless, in consequence of the limited supply of air between the bars (which, if necessary, may be controlled by a door), more air is required, and is admitted into the mixing-chamber *d* through the aperture *m*, regulated by the slide *n*. For attaining a complete combustion and a very high temperature, the gases and the air must be completely mixed, and this is effected by making them pass through the narrow passages *o* before reaching the body of furnace itself, *a*.

"*p* is a flue beneath the body of the furnace, through which the products of combustion may be passed directly to the chimney while the body of the furnace is open for the removal of the pots or for other purposes. Suitable dampers *q* control the passages. For the purpose of cooling the partitions in the furnace, as well as for the saving of fuel, air is admitted through the channels *r* in the partitions and the flue *p* to the mixing-chamber *d*.

"In Figs. 7, 8 and 9 the bars *f f* are provided on either side of the furnace-bed *k*, and the outlet to the chimney is through a chamber *q'*, in which the materials are heated before being drawn on to the bed of the furnace for fusion. *p* is the direct passage to the chimney for use when required."

The claims of the patentee are:

"1. A liquid fuel furnace having a fire-box provided with an aperture in the front, containing horizontal trough-like fire-bars arranged one immediately over the other, and adapted to receive and maintain the liquid fuel at uniform depths.

"2. A liquid fuel furnace having a fire-box provided with an aperture in the front, containing horizontal trough-like fire-bars arranged one immediately over the other, a supply-pipe for the liquid fuel, and overflow-communications between the superposed troughs.

"3. A liquid fuel furnace having a fire-box provided with horizontal trough-like fire-bars, one over the other, to receive the liquid, air-inlet, a mixing-chamber, and narrow passages leading from the mixing-chamber to the body of the furnace.

"4. A fire-bar for a liquid fuel furnace, said fire-bar consisting of a horizontal trough provided with a pan *f'*, communicating perforation f^3, and overflow."

3d. It is not necessary to give any special instruction as to the means of handling quickly and conveniently the metal from the furnace to the mold. They are such as are desirable in any foundry.

4th. *A Suitable Molding Material.*—The Swedish introducers of the mitis process have also patented (Patent No. 317,062, 1885) a molding or facing material, which is described in the patent as follows:

"One volume pure pulverized sugar is dissolved in about two volumes pure water and strained, and then one eighth volume of kerosene or like hydrocarbon oil is added. Twenty-four to thirty volumes powdered hard-burned fire-clay are moistened with the foregoing solution, and the mass is passed through a coarse sieve several times, so as to be rendered equally moist throughout. As this facing-sand ought to be as moist as common facing-sand, more water should be added, if necessary. Instead of sugar, other binding substances can be used, such as molasses, gum, glue, etc.; but I prefer sugar, because it is clean and of even quality, and may be had everywhere."

The molds are made as in ordinary sand molding. The flasks are preferably of metal.

The following are the claims:

"1. A facing or molding material consisting of hard-burned ground fire-clay and a binding material in quantity sufficient to impart firmness to the molding material after being dried in the mold form, the whole being free from any substance containing any substantial quantity either of silica, lime, magnesia, or like matter of a fluxing nature, or of carbonaceous material, as set forth.

"2. A facing or molding material consisting of hard-burned ground fire-clay, kerosene or other hydrocarbon oil, and a binder, the whole being substantially free from fluxing or hardening substances, as specified, for the purposes set forth."

The advantages of this molding material are said to be that, first, it is practically infusible, and does not, therefore, stick to the castings; second, it does not carburate the castings; neither will it make them porous or brittle, as the silicon facing-sand seems to do; the castings will preserve the nature of wrought-iron or steel completely, according to their percentage of carbon, etc.; third, it gives to the castings an exceedingly beautiful light-blue glossy surface; and fourth, it is cheap and easy to obtain at most iron-works where fire-bricks are used.

How far these claims or this patent is valid, it is not for us to say; but we happen to have on our desk a sample of furnace lining made from ground fire-brick and molasses, some years ago by Mr. Armitage Rhodes at Montreal, which certainly closely resembles this molding material in its composition.

Metal molds or chills answer perfectly for mitis castings, since the metal does not chill or harden, and, as it solidifies very rapidly, the molds can be opened almost immediately, and can thus be used over and over again with great rapidity.

In England, a company has been organized to purchase or work these several patents, and a vast amount of stock and bonds is being issued. How far these patents may be valid would, of course, have to be decided in this country also.

The manufacture of mitis castings of iron and steel appears to have a great future before it, and we have no doubt will receive the attention it merits from our intelligent and progressive metallurgists. As we have already stated in these pages, the aluminium alloys of iron used in this process are made by the Cowles Electric Smelting Company, in Cleveland, Ohio.

The Copper Duty Question.—The proposal to place import duties on raw copper, which is strongly championed by the general manager of the Mansfelder Gewerkschaft, is said to find considerable sympathy at the hands of the Prussian government. At any rate, orders have been issued recently to government presidents in Prussia to collect opinions on the subject from chambers of commerce, etc.

METCALF ON LARGE STEEL GUNS.

The following letter was addressed to the *Army and Navy Journal* by Mr. William Metcalf, of Pittsburg, one of our most distinguished American metallurgists, and one of the highest living authorities on the working of steel :

The first thing to be thought of in a large gun is its proper form.

There can be little question that the form of gun known as the Rodman is nearly if not quite perfect, and that its curves, modified to suit the different lengths required, would give the best shape for heavy rifled guns.

The next thing to be considered is the material of which the gun should be made.

At the present time, mild cast-steel seems to be regarded as the most suitable material, as it is stronger and more homogeneous than wrought-iron ; and is also much stronger, although not more homogeneous, than cast-iron.

We have next to deal with the properties of cast-steel and to consider which is the best mode of manipulation of the metal to secure those properties that are most desirable in a gun.

Cast-steel is crystalline in structure, and experience proves that it is in its condition of greatest strength when the crystals are of the smallest attainable size, the most uniform in size throughout the mass, and are free from irregular internal strains. When a large mass of steel is cast, and is allowed to cool slowly and without interference, it forms in large, irregular, and unevenly distributed crystals, and in that form it has very little useful strength. It is the object of subsequent operations to reduce these crystals, make them uniform in size, and even in distribution in the mass. There are three common modes of working the ingot to obtain these ends.

The most common method is that of forging or hammering.

In forging, the practice is to heat the steel until the crystals are destroyed and the mass is plastic, then to subject it to heavy and rapid blows of the hammer while it is cooling ; the effect is to compact the mass and increase its density, and to force the formation of small crystals by the violent vibrations caused by the blows of the hammer.

Another method that has many advocates is that known as liquid compression. In this case, the steel while molten is subjected to very heavy pressure by the use of powerful hydraulic rams, and in this way it is made dense, homogeneous, and small in crystallization.

The third method is the one that is used from necessity by the makers of steel castings ; it is called annealing, and consists in heating the mass slowly to a uniform red heat and then cooling it very slowly. The effect of this annealing is to produce a casting that has small crystals of uniform size and even distribution ; it is the easiest, cheapest, most certain, and most rational way to produce a large mass of steel of uniform structure and great strength.

The objections to the first method, by forging, are its great cost, its uncertain results, and its limitations.

By this method, it is necessary to make a gun of many pieces, a built-up gun, because a whole gun can not be hammered successfully in one piece.

The cost of heating and hammering the various parts is large, and after this is done, each piece must be machined accurately and at still greater cost ; and when the whole is assembled, it is an unmechanical, unscientific agglomeration of uncertain strength.

The method of liquid compression is open to the objections of great cost, and uncertain results ; if the first operation be unsuccessful from any cause, the whole work is lost, because the operation can not be repeated.

The method of casting and annealing is cheap and sure. A whole gun weighing one hundred tons or more can be operated upon as easily as a piece of steel weighing one ton can be hammered.

If the first annealing should not be complete, the operation can be repeated as often as may be necessary until the result desired is obtained.

It is a property of cast-steel, well known to steel-makers, that an ingot can be made as fine in the grain, more homogeneous and free from internal strains, and quite as strong by annealing as it can be made by any amount of hammering or rolling.

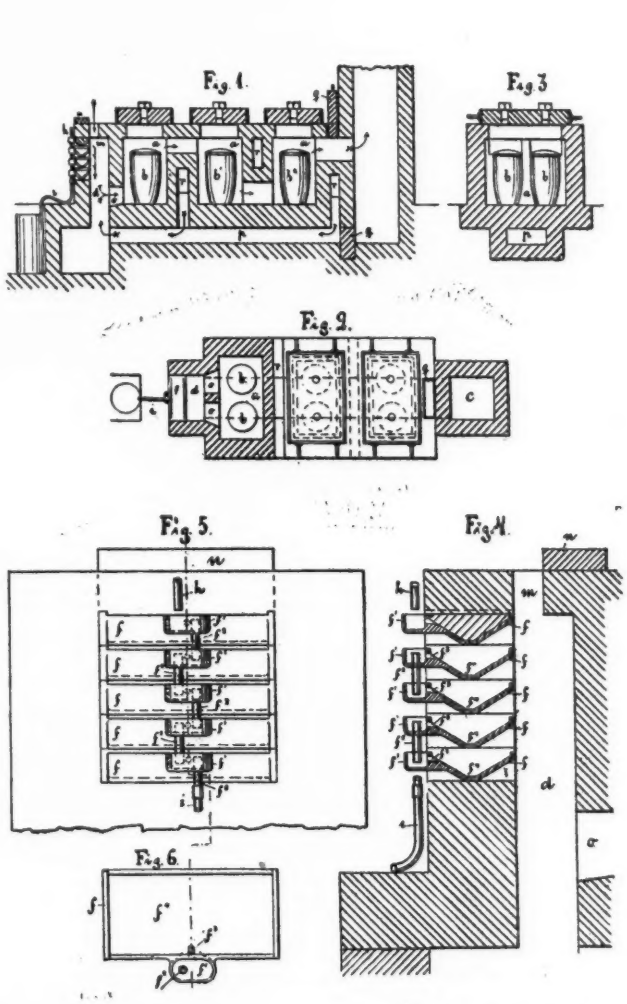
As to the soundness of castings, the problem of producing sound steel castings is no more difficult of solution than it was in cast-iron in the days of the great Rodman and Dahlgren guns ; in fact, it has long been solved by the well-known Terre-Noire process.

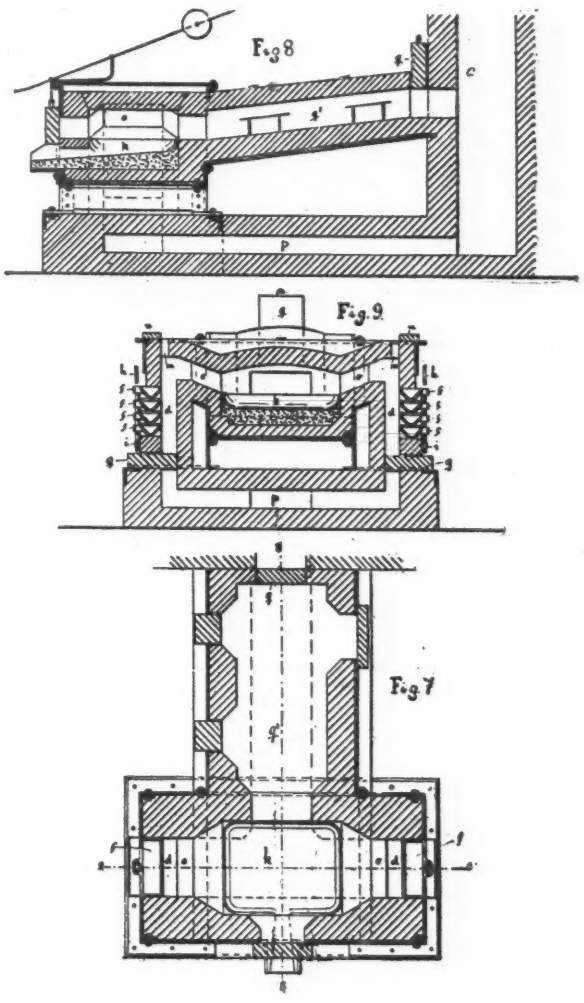
But it is said the Terre-Noire people have failed to produce satisfactory cast guns. Of course they have ; they did not the use Rodman principle, and without it there is little hope of making a large gun successfully ; with it, a 200-ton rifled gun is just as possible and just as sure as are the 15-inch and 20-inch smooth-bore guns that are mounted in Fort Hamilton.

If ordnance constructers could only be made to understand that cast-steel is only cast-iron refined and strengthened ; that every rule, every property, every characteristic of one is common to the other, only differing in degree ; if they would realize that Rodman reached the perfection of science in manipulating crystalline metal, American guns of cheap cost and sure value would soon be as far ahead of the composite failures of Europe as the great cast-iron Columbiads of our war days were ahead of any thing the world had ever seen up to that time.

It has cost Europe many millions of dollars to secure a feeling of safety against those old Rodman guns, and yet there is not a really safe, well-designed, mechanically constructed great gun in Europe to-day, and it is safe to say there never will be one that is made by hammering or pressing.

What America needs is another Rodman to develop his principles again, and so place our armament away in advance of any thing that has been done anywhere in the world.





NOBEL'S LIQUID FUEL FURNACE.

SEPARATION AND DETERMINATION OF COPPER, CADMIUM, ZINC, NICKEL, COBALT, MANGANESE AND IRON.*

By Ad. Carnot.

(*Concluded from page 322.*)

After having shown how, by means of ammonium or sodium hyposulphate, we may separate copper from cadmium, and the latter from zinc, the author indicates in what manner he effects the separation of zinc, nickel, and cobalt, manganese, and lastly iron, by means of sulphureted hydrogen, modifying the condition of the liquids for the successive precipitations.

Zinc may be precipitated alone in the state of a very white sulphide by neutralizing the solution entirely with ammonia, acidifying slightly with oxalic acid and passing in a rapid current of hydrogen sulphide. The liquid should be dilute and cold, to prevent the formation of a deposit of zinc oxalate or of other metallic oxalates. The precipitate formed comprises the total zinc, which may be determined as zinc sulphide after ignition in dry hydrogen sulphide.

If the solution from which the zinc has been eliminated contains merely nickel or cobalt, a little ammonia is added and some ammonia hydrosulphate. After digestion for a few minutes, it is acidified with acetic acid, raised to a boil, and the nickel or cobalt sulphide is then collected on a filter. But it is necessary to ascertain if the precipitation is complete, by trying if the filtrate is not colored brown or black when treated with ammonia and ammonium hydrosulphate. If there is a coloration, it is necessary to decompose the hydrosulphate again with acetic acid at a boil. The precipitate is brought to the composition NiS or CoS by ignition in a Rosé crucible, traversed first by a current of hydrogen sulphide, and then by one of pure hydrogen.

If the solution contains only iron, it is simply precipitated with ammonia and hydrosulphate.

If nickel and iron are simultaneously present, the two metals may be precipitated and weighed together as monosulphides, by operating in the same manner as for nickel alone, or as it is indicated below.

Lastly, if, after the elimination of the zinc, the liquid still contains nickel, iron, and manganese, these three metals are separated by neutralizing the feebly oxalic liquid with ammonia, adding an excess of neutral ammonium or sodium acetate, acidifying again slightly with acetic acid, and passing in a solution of hydrogen sulphide for a very long time, then stoppering the bottle and letting the black precipitate of nickel and iron sulphides deposit. The filtrate, mixed with ammonia and hydrosulphate, gives a rose-colored precipitate of manganese sulphide, perfectly free from other metals. On ignition in hydrogen sulphide, it yields the green sulphide, MnS, of a perfectly definite composition.

The same process, consisting in the employment of hydrogen sulphide in large excess in a slightly acetic solution, effects a very distinct separation of iron and manganese. It may be applied under various circumstances, and is sometimes preferable to the method with acetates at a boil; for this method is not perfect if the quantity of iron is considerable.

In the same case, the separation of iron and zinc is effected incompletely by ammonia alone and even by the acetates. It succeeds better by the method with sulphides on condition of observing the following precautions: Almost exact neutralization with ammonia; dilution with much water; addition of ammonium chloride and only a small quantity of ammonium oxalate, so as not to have a deposit of iron oxalate, which would mix with the zinc sulphide and give it a black color after ignition in hydrogen sulphide. If this accident occurs, it must be calcined in pure hydrogen before weighing; then account must be taken of the sulphide FeS on re-dissolving in *aqua regia* and precipitating the small quantity of iron that has been entangled in the zinc with ammonia.

Thanks to the methods thus explained, the analysis of the manifold alloys containing copper, zinc, nickel, and sometimes cobalt, manganese, and iron, the analysis of the cadmiferous, cupriferous, and ferruginous zinc ores, and that of the products of their metallurgical treatment, will become much easier and more simple than heretofore.

* *Comptes Rendus*, cii., p. 678.

Discovery of Gold in Patagonia.—A gold fever is raging in the Argentine Republic in consequence of the reports of the discoveries of the precious metal in Patagonia. Two hundred petitions for the right to dig for gold in the Rio Gallegos District (where it is said the ore is) have been presented to the government, and arranged parties are regularly quitting Buenos Ayres for the fields. The *Buenos Ayres Standard* states that, if these gold mines turn out as rich as expected, the government need take no special care about sending colonists and their families to the Rio Gallegos, as 20,000 people will pour into the valley when the fame of the gold spreads to Europe. Machinery has been already ordered from Europe and a company has been started to work the mines with better elements than those at present used by the explorers from Punta Arenas. The sudden demand for cattle, mares, and sheep that has sprung up in the Rio Negro shows pretty clearly that there is a much greater population in Gallegos than was supposed, and letters have been sent from Punta Arenas to people at Buenos Ayres, asking for provisions to be sent down from Montevideo by the German steamers as quickly as possible. In these letters, it is stated that, while in former days three gold dollars a day were the average earnings from gold washing, now the gold-washers make twenty gold dollars a day, and one or two parties have made 20,000 gold dollars in two months.

Diamonds in New South Wales.—Diamond mining in New South Wales is likely to become of much importance. Upward of 12,000 diamonds are reported to have been found up to the present time. They have been chiefly obtained from the Tertiary gravels and in the more recent drifts, in the Bingera, Inverell, and Cudgegong districts; and a few have also been found in the Mittagong, Wellington, and Uralla districts. In 1872–73, attempts were made to work the diamond-bearing deposits at Two-Mile Flat, on the Cudgegong River, and at Bingera, when the greater number of the diamonds above mentioned were obtained, and the following results of some washings by the Gwydir Diamond Mining Company were reported. Six loads of wash-dirt yielded 41 diamonds; five, 42 diamonds; four and a half, 143 diamonds; six, 88 diamonds; six 163 diamonds; six, 89 diamonds; and 151 loads, taken as prospects from twenty-four different places, yielded 104 diamonds, which were nearly all of small size, averaging about one carat grain each, and of light straw and pale greenish color, although some were colorless and of good quality. Messrs. McCaw & Westcott also reported that six loads of wash-dirt yielded 101 diamonds; seven, 102 diamonds; six, 119 diamonds. As the work was then not profitable, it was abandoned. Attention, however, has lately been again given to this branch of mining in the Bingera, Inverell, and Mittagong districts. In December, 1885, the Australian Diamond Mining Company, Bingera, obtained from eighty-seven loads of wash-dirt from the Monte Cristo mine 1134 diamonds, weighing 209 carats. From the new Banca diamond mine, near Inverell, sixty loads of wash-dirt yielded 1951 diamonds, weighing 288 carats. From the Pine Ridge Diamond Mining Company's ground, near Inverell, it is reported that 110 loads of wash-dirt yielded 1450 diamonds, weighing 282 carats. It is believed that the diamond-bearing deposits are extensive.

The South Chicago Furnace and Mill Record.—The following is the full and remarkable record of the South Chicago Works, is referred to in our last issue. It stands unrivaled thus far:

WORK OF SOUTH CHICAGO PLANT, WEEK ENDED MAY 1ST, 1886.

Furnace No. 5	1296	tons iron—	1960	pounds coke per ton iron.				
No 6	1230	"	—1960	"	"	"	"	
No 7	1398	"	—2000	"	"	"	"	
No. 8	1368	"	—1935	"	"	"	"	
Total iron	5322	tons. Av.	1958	"	"	"	"	

Bessemer Department.

Monday	24	hours,	103	heats,	991 gross tons.
Tuesday	"	"	99	"	967 "
Wednesday	"	"	92	"	882 "
Thursday	"	"	94	"	918 "
Friday	"	"	94	"	907 "
Saturday	9	"	33	"	318 "
Total for week			515	"	4973 "

Rail Mill Department.

Monday,	Day turn	1863	rails,	60	pounds per yard,	479	tons.
	Night "	1443	"	"	"	380	"
Tuesday,	Day "	1551	"	"	"	412	"
	Night "	1598	"	"	"	424	"
Wednesday,	Day "	926	"	60 and 56	pounds	233	" Chg'd rol's twice.
	Night "	1811	"	56	" "	447	"
Thursday,	Day "	1304	"	"	" "	325	"
	Night "	1607	"	"	" "	396	"
Friday,	Day "	1196	"	67	" "	350	" Chg'd rolls.
	Night "	1358	"	67 and 56	" "	378	" "
Saturday,	Day "	972	"	56	" "	241	" Idle 3 hours.
		15,569	rails.			4065	tons.

A 4000-Ton Hydraulic Forging-Press.—Such a press is being constructed by Messrs. Davy Brothers, of Sheffield, for Charles Cammel & Co., of the same place. *Engineering* says among the large hammers in European works are the following: "Messrs. Schneider have a 100-ton hammer; the St. Chamond Works, an 80-ton; Woolwich possesses a 40-ton; and Krupp, a 60-ton at work, and a 150-ton hammer now, we believe, in course of erection. The great cost of installation of such large hammers has perhaps deterred our English steel-makers from making much advance, and, besides this, they have felt that the hydraulic press was more suitable for the production of large forgings. Except in two instances, the efforts made to substitute the press have met with only very partial success, owing to its slowness of action and want of adaptability to the variety of work that can be executed under a hammer. Seeing that the press has been proved to make the best forgings, further efforts are now being made, and there will soon be three others put to work in this country. The question of the quality of work, of course, outweighs every other consideration, but there are other reasons for the transition now in progress. The cost of installation is less in proportion to the weight of forgings made. The moderate hight of a press permits the use of overhead traveling cranes, so that the furnaces, six or eight in number (all accessible to the cranes), can be arranged along the sides of the forge with one press to serve them all; whereas four furnaces with a swing crane to each is the practical limit in the case of a large hammer, whose great hight forbids the use of overhead travelers. It is less costly to keep in working order; less liable to break-downs; the supposed inherent slowness of action has been overcome, and it possesses all the handiness and adaptability of a steam-hammer."

This gigantic machine is illustrated and described in *Engineering*, April 23d.

PATENTS GRANTED BY THE UNITED STATES PATENT-OFFICE.

The following is a list of the patents relating to mining, metallurgy, and kindred subjects, issued by the United States Patent-Office.

GRANTED APRIL 27TH, 1886.

340,584. Furnace. William Kent, Jersey City, New Jersey.
340,616. Means for Transportation and Distribution of Gas. Thomas P. Roberts, Pittsburg, Pa.
340,691. Steam-Pipe and Boiler Covering. La Fayette Aldrich, Milwaukee, Wis.
340,696. Gas-Regulator. Alexander Caldwell, New York City.
340,718. Method of Driving Steam-Engines. Moritz Honigmann, Aix-la-Chapelle, Germany.
340,720. Ore-Crusher. Stephen R. Krom, Plainfield, New Jersey.
340,740. Boiler or Tube Covering. William M. Suhr, New York City.
340,759. Tunneling-Machine. Frank O. Brown, New York City.
340,781. Furnace for Burning Fine Coal. Anton Hardt, Wellsborough, Pa.
340,791. Coal-Mining Machine. Van Amburg Lechner and Samuel C. Lechner, Columbus, Ohio, Assignors of two thirds to Francis M. Lechner, same place.
340,792. Cutter for Mining and Other Machines. Benjamin A. Legg, Columbus, Ohio, Assignor to Joseph Andrew Jeffrey, same place.
340,873. Gas and Air Port for Regenerative Furnaces. William Hackney, Swansea, County of Glamorgan, and John W. Wailes, Wednesbury, County of Stafford, England.
340,874. Amalgamator. Benjamin S. Harbach, Philadelphia, Pa.
340,875. Stone-Sawing Machine. Henry Hartley, Minneapolis, Minn.
340,878. Apparatus for Distilling or Refining Mineral Oils. Norman M. Henderson, Broxburn, County of Linlithgow, Scotland.
340,891. Rolls for Rolling Girder-Rails. Arthur J. Moxham, Johnstown, Pa.
340,917. Feeding Appliance for Rolling-Mills. William R. Jones, Braddock, Pa.

FURNACE, MILL, AND FACTORY.

The Irondale Furnace (charcoal), at Irondale, Washington Territory, owned by the Puget Sound Iron Company, San Francisco, Cal., is expected to start up about the middle of this month.

The St. Louis Ore and Steel Company, of St. Louis, Mo., has been gradually getting itself in shape for complete reorganization. The gathering in of the bonds is now nearly finished.

Messrs. Gordon, Strobel & Laureau, of Philadelphia, have made a contract with the Western Steel Company for the improvement of furnace C, which calls for three Gordon-Whitwell-Cowper stoves, the raising of the furnace to 75 feet, ring coolers, and all modern details. A statement of the receiver of the St. Louis Ore and Steel Company, lessors, shows that these changes will cost $48,000, and will increase the output of the furnace from 100 to 150 tons a day.

The Ohio Iron Company, at Zanesville, has closed a contract with Gordon, Strobel & Laureau, of Philadelphia, Pa., for the erection of an open-hearth steel plant. It will consist of a ten-ton open-hearth furnace, with round melting-chamber and regenerator, with the necessary hydraulic ladles and ingot cranes, with pumps and a gas-heating furnace for heating ingots.

The Miltimore Steel Car-Wheel Company has been incorporated in Detroit, Mich., with a capital stock of $100,000.

After a shut-down of several months, the Vulcan Iron-Works, at Carondelet, near St. Louis, Mo., resumed operations on the 3d inst. A schedule of wages that is to remain in force until January 1st, 1887, has been unanimously adopted by the men.

The Kloman iron mill, at Moundsville, sold some time ago at public sale under foreclosure to J. D. Weeks, of Pittsburg, representing a syndicate of bondholders, which sale was set aside by the court, was sold again last week to Mr. Weeks, for $7925.

Messrs. Kendall & Roberts, of Cambridgeport, Mass., report that they have manufactured and sold more hoisting engines since January than in any previous year since they have been in business.

The American Steam-Gauge Company, of Boston, Mass., has just shipped a large order to the Calumet & Hecla Mining Company, in Michigan.

Owing to the scarcity of coal, the Fall River iron-works, Mass., shut down on the 1st inst.

PROPOSALS.

Andrew Mason, Superintendent of the United States Assay-Office, New York City, will receive proposals until June 7th for furnishing such supplies as may be required from time to time by that office during the twelve months ending June 30th, 1887, embracing acids and other chemicals, charcoal, oils, borax, fluxes, crucibles, iron pipe and castings, copper plates, etc., sheet-lead and pipe, hardware and other necessary supplies.

At the office of the Public Printer, Washington, D. C., proposals will be received until May 27th for coal for use in that office for the fiscal year ending June 30th, 1887.

LABOR AND WAGES.

An increase of ten per cent has been made in the wages of the employés of the Scranton Steel Company, Scranton, Pa. The tonnage men are now receiving the same wages as they did in 1883.

Delegates, representing miners of the Mahoning Valley, Ohio, met in convention at Youngstown on the 6th inst., and decided to still maintain the demand made for an advance of 10 cents a ton, which operators refused to give. The convention decided to refer the matter to President McBride, of the Ohio Miners' Amalgamated Association, for instruction as to what course to pursue, and in the mean time to continue work at the old price, after which they adjourned to Friday, May 14th. It is probable they will ask operators to arbitrate the question of advance.

Governor Pattison, of Pennsylvania, has completed his inquiries as to the average earnings of the workers in the mines of the Clearfield coal region. In presenting to him the formal statement of their grievances, the strikers' committee alleged that their pay did not exceed $20 a month. The operators denied this statement, and claimed that their pay-rolls showed that the earnings of the men averaged $40 a month. The governor's investigations show that the actual average is a fraction less than $30 a month. The number of men still on strike in this district is as follows: In the Clearfield region, 3500; at George's Creek, 2900; Elk Garden, 700; Irwin, 2100; Pocahontas, 900; with others scattered along the Chesapeake & Ohio Railroad. The regions in which the advance has been given and resumption secured are: Clearfield, where 2000 men are at work; Meyersdale, Lilly's, South Fork, Gallitigan, Coal Port, and Broadtop. About one third of all the men in the district have resumed.

A number of miners in the Elk Garden region of West Virginia, on the 4th inst., attempted to go back to work at the old rates. They were attacked by a large body of strikers and badly beaten. This had the effect of making the men promise not to enter the mines. The operators appealed to the authorities for protection.

The superintendent of the coal mines at Pocahontas, Va., having refused to revoke his order discharging all employés brought before the mayor on charges of misdemeanors, the miners went on strike. No disturbance has occurred, but great excitement prevails.

TRANSPORTATION NOTES.

The Cœur d'Alene Railroad and Navigation Company has been organized, with a capital of $500,000, to build and operate a line of rail and steamboat connection with the Cœur d'Alene mining district. It is proposed to leave the main line of the Northern Pacific at Rathdrum, and build south to Lake Cœur d'Alene, fifteen miles, where connection will be made with a line of steamers to run up the lake and Cœur d'Alene River, sixty miles. From that point, a road will be built to South Fork and Murray, the center of the mining region. The incorporators are D. C. Corbin, S. T. Hauser, H. M. Halter, S. S. Glidden, J. F. Wardner, James Monoghan, and A. M. Esler, all of Helena, Montana.

The Tennessee Coal, Iron, and Railroad Company reports for April: Coal received directly from mines, 11,126 tons; coke received directly from mines, 8579 tons; and in 1886, coal, 43,627 tons; coke, 42,618 tons; total, 86,245 tons.

The Chicago & Indiana Coal Railroad Company, which owns and controls the line from Yeddo, Fountain County, to Rockport, Spencer County, part of which is already built as far south as Brazil, and the Indiana Railroad Company, whose line extends from Fair Oaks, Jasper County, to Yeddo, have consolidated under the title of the Chicago & Indiana Coal Railroad Company, with head-quarters at Chicago, and a capital stock of $10,000,000.

COAL TRADE NOTES.

The Kansas & Missouri Coal Company has been incorporated with a capital stock of $500,000, one half of which has been paid. The stock is held by the following persons: Jay Gould, 4996 shares; George J. Gould, H. M. Hoxie, D. S. H. Smith and C. G. Warner, each one share. The object is the carrying on of a general coal and mining and manufacturing business in Missouri, Kansas, Indian Territory, and elsewhere; also the buying, owning, and controlling of stocks and properties of other coal and mining companies, and buying and owning all such property.

ILLINOIS.

Since the courts have decided that the city of La Salle owns the coal underlying the streets and alleys, the new council is preparing to tackle the question of disposing of it. There are those who think it should be given as a bonus to the coal operators who have already mined and removed a very large fraction of it for their own pecuniary profit.

KANSAS.

At Topeka, active operations have begun for the development of coal property there. A force under the direction of Mr. S. W. Douglas, agent of the American Diamond Drill Company, of New York City, are putting up the buildings and derrick necessary for the transaction of business.

PENNSYLVANIA.

ANTHRACITE.

The Dorrance colliery at Wilkes-Barre, of the Lehigh Valley Coal Company, which was first developed something like a year ago, the Hillman seam being operated at about six hundred feet below the surface, is to be pushed down to underlying deposits.

The Philadelphia & Reading Company's Keystone Colliery at Ashland resumed operations on the 4th inst. It was one of the thirteen collieries ordered to suspend a year ago. New workings have been opened.

BITUMINOUS.

Philadelphia capitalists have purchased, it is stated, over 3312 acres of coal-producing territory in Westmoreland County. This company will build a railroad from a point near Hunker's station, on the Southwest Railroad, to follow the bed of the Big Sewickley to its mouth, and will connect with the Baltimore & Ohio road at or near Scott Haven, to give it an outlet for its coal.

COKE.

The advance in the wages of coke-workers in the Connellsville region and the advance in the price of their product went into effect on the 1st inst. Notwithstanding this, not a single contract has been lost by the syndicate or the independent operators. The coke trade is improving. The shipments made by the syndicate during April reached 18,000 cars. This is an increase, compared with March, of over 1000 cars. From present indications, the syndicate shipments for this month will run up to 20,000 cars.

GAS AND OIL NOTES.

Exports of refined, crude, and naphtha from the following ports, from January 1st to May 1st:

	1886. Gallons.	1885. Gallons.
From Boston	1,596,123	2,119,256
Philadelphia	39,040,154	34,785,481
Baltimore	3,920,976	2,820,438
Perth Amboy	1,096,444	....
New York	120,513,169	113,444,296
Total exports	166,166,866	153,175,471

The Price of Natural Gas.—The charges made by the Philadelphia Company, which may be taken as the ruling prices in Pittsburg, are as follows:

Iron and Steel:	
Puddling, gross ton	$1
Heating (each heat), gross ton	40c. to 60c.
Boilers, per month	$50 to $100
Total cost gas per ton iron, single heated, gross ton	$1.80 to $2 10
Sheet iron or steel, gross ton	2.25 to 2.60
Hoop iron or steel, " "	2.25 to 2.60
Open hearth melting " "	.70
Crucible steel " "	.50
Hammer furnaces, per day	1.00 to 1.60
Glass:	
Flint, each 10-pot furnace, per month	$160
large glory-hole, " "	30
small " " "	$15 to 20
lear, " "	25
steam-boiler, " "	35 to 50

Average cost gas about $28 a pot per month.
Window-glass.—Average $33.33 a pot per month, blowing furnaces, flattening ovens, sand furnaces, and boilers included
Green bottle glass same as window glass.
Boilers in general works range from $20 to $150 a month.

Oil stills, per month	$35.00 to $100.00
Brick kilns and drying floors, per M	1.00
Fire-brick, per M	1.00 to 1.40

Domestic use.—This is based on number of square feet heated, the basis being $10 a year for 15 feet square. The charge for heating stoves is $2.50 a month, for open grates, $2.

The Philadelphia Company supplied the following in March:

Boilers	967
Heating furnaces, large	587
" " small	223
Puddling "	505
Crucible "	21
Open-hearth furnace (with running attachments)	13
Hammer	58
Nut, bolt, and chain	60
Glass-melting pots	623
Glory-holes, lears, ovens, etc	378
Oil stills	31
Brick-kilns	18
Drying-floors	23
Dwelling houses, over	4500

ILLINOIS.

Natural gas has been struck at Cerro Gordo, at a depth of 125 feet.

PENNSYLVANIA.

The company at Connellsville drilling for natural gas has decided to drill to a depth of 3000 feet. The present depth is 2568 feet, and so far the prospects for striking natural gas have been poor.

The gas well west of Uniontown has some gas at 2404 feet, but not sufficient to be piped. Another well will be drilled near the No. 1.

The rigging of the Thayer oil well at Washington was struck by lightning on the 6th inst. The well was the largest in the district, the average daily flow being sixty barrels. The flames were quenched after several hours by the use of steam-jets. The loss was $4000.

The Charterers' Natural Gas Company began laying pipes in Alleghany City on the 6th inst. without having first secured, it is said, the permission of City Councils, and in consequence about one hundred and

fifty laborers were arrested. They were released on bail furnished by the contractor and will have a hearing on the 8th inst. The gas company has ceased al attempts to lay the pipes.

A strike has been made at a well at Legionville, two and a half miles from Economy, and on the north side of the Ohio River. The report was, that the well was doing fifty barrels an hour, and this was corroborated later in the day. The new well extends the territory westward fully two miles, and the strike is considered of great importance.

The Thayer No. 1 and Gordon No. 1 were both set on fire from a torch in the hands of one of the workmen on the 7th inst. Efforts to extinguish the flames have thus far proved ineffectual.

GENERAL MINING NEWS.

Judge Symes, of Colorado, introduced a bill in Congress last week, providing that mining claims or any kind of mineral deposits, hereafter located, may equal but shall not exceed twenty acres; but no claim shall be located until the discovery of the vein or lode within the limits of the proposed claim. Such claims shall be substantially in form parallelograms. The locators of all lode mining claims or locations that shall hereafter be made on the public mineral lands of the United States, their heirs and assigns, where no legal adverse claim or right exists at the date of the discovery or location, so long as they comply with the laws of the United States, and with the State or territorial laws and local regulations not in conflict with the laws of the United States governing their pre-emption and possessory titles, shall have exclusive right to the possession and enjoyment of all veins, lodes, and ledges, and of all mineral deposits of every kind and character found or existing within the boundary lines of the said lodes or mining claim extended downward vertically. Nothing herein contained shall be construed as giving any locators or owners of mining claims the right to follow any vein or mineral deposit outside the vertical boundary lines of such claims.

ARIZONA.

PIMA COUNTY—QUIJOTOA DISTRICT.

The properties known as the bonanza mines, the Peer, Peerless, and Crocker Mining companies, it is reported, have been attached by the Nevada Bank, of San Francisco, for money loaned, amounting to about $30,000. These properties were floated about two years ago by the "Bonanza Kings" of Comstock fame. Work has been stopped for several months.

PINAL COUNTY.

SILVER KING.—According to reports from San Francisco, Albert V. Bills has brought suit in the Superior Court against the Silver King Mining Company for $224,932 damages, claiming that the dividends declared by the company between October, 1877, and June, 1879, had never been paid on the stock held by him.

YUMA COUNTY.

Good wages, it is reported, are made in Yuma County by the use of dry-washing machines in the placer diggings. Gravel that does not pay over a quarter of a cent to the pan is successfully washed.

CALIFORNIA.

BUTTE COUNTY.

BIG BEND TUNNEL COMPANY.—This tunnel, which has been nearly four years building, at a cost of several million dollars, and is 1200 feet long, 16 feet wide, 9 feet high, with a fall of 30 feet to the mile, has been completed. By this tunnel, some 14 miles of the bed of Feather River will be drained so that gold mining operations may go on.

INYO COUNTY.

At the marble quarry at Swansea, to which we have already referred several times, the work now in hand and likely to be for some weeks yet is stripping to properly open the quarry before regularly beginning to extract merchantable blocks. Experienced marble quarrymen are essential; for handling marble in place differs from any other work, and is a special trade in itself; for this reason suitable men are rather hard to find, though ordinary rock-workers are plentiful. The C. & C. Railroad is now putting down a side-track, which in half a mile, reaches to the quarry. The company has not yet formally bound itself to furnish the 800 tons of marble required for the Sharon gateway at San Francisco.

MONO COUNTY—BODIE DISTRICT.

BULWER CONSOLIDATED.—The face of the south drift on the tunnel level shows only a small seam of quartz on the foot-wall. The ground in the drift and cross-cut on 400 level is very hard. There are two small stringers in the face.

STANDARD CONSOLIDATED.—During the week ended the 26th ult., there were shipped 294 tons of ore. The ore-bodies are holding strong. The bullion shipped on the 20th ult. was valued at $7231.96.

NEVADA COUNTY.

Reports state that the eight-stamp mill owned by Andrews Brothers, at Grass Valley, has been destroyed by fire. The mill was run by water-power. It was valued at $5000.

CANADA.

PROVINCE OF ONTARIO.

The West End miners have once more started work on their location on Silver Mountain. A tunnel is running from the foot of the mountain to the vein for drainage.

CROWN POINT.—A rich strike is reported to have been made in this mine on Silver Mountain. The company that has purchased the mine will vigorously push work.

COLORADO.

BOULDER COUNTY.

GOLD RING.—This company is erecting a fifty-stamp mill at Gold Hill.

CLEAR CREEK COUNTY.

ATLANTIC-PACIFIC.—Work has been resumed on this tunnel.

DOLORES COUNTY.

PASADENA.—The capital of this company has been increased to $500,000, which is ample to increase the capacity of the smelter and leave sufficient working capital. An early resumption of purchasing ore is expected.

EAGLE COUNTY.

IRON MASK.—The Arkansas Valley smelter has closed a contract for the output of this mine at Red Cliff. The ore is particularly desirable for smelting in conjunction with the dry and sulphide ores of Leadville.

GILPIN COUNTY.

IDAHO.—This company, which is driving a tunnel under Caledonia Mountain, Hawkeye District, has reached a distance of 500 feet, and has intersected a vein, the first prominent one crossed in driving that distance.

NEWFOUNDLAND MINE COMPANY.—The company intends resuming development of the St. Louis lode, northeast of the Newfoundland and the easterly extension of that vein, and 1200 feet from main shaft on the former. Both shafts will be connected.

GUNNISON COUNTY.

MARIE DE REES TUNNEL.—Parties have taken a contract on this old tunnel, and expect to run 40 feet. This tunnel was begun and run 200 feet by Mr. E. R. Moffat and others in 1883, and it is now in to a depth of 350 feet, and will be continued with the view of reaching the Luona vein or contact that has produced such rich surface ore.

LAKE COUNTY.

The Leadville *Herald-Democrat* reports the following:

AGASSIZ.—In the contest between Dunn and the officers of the Agassiz Mining Company, the previous decision of the court was affirmed. Both parties are enjoined against transferring the stock in controversy, pending a permanent settlement of the case.

COLONEL SELLERS.—The new concentrating mill has recently been equipped with an improved electric lighting plant, supplying 50 incandescent lights for the mill and shaft-houses on the property.

IDEAL.—This company has been organized at St. Louis, with a capital of $1,000,000, shares $5 each. It owns the Midnight and Katy properties.

LA PLATA.—The smelter has been compelled to close down, being unable to secure the particular ores required to make economical smelting charges. Several other establishments have also reduced the number of furnaces in blast, being unable, on account of the bad roads, to secure ores from the mines with which they have contracts.

LEADVILLE CONSOLIDATED.—The manager of these mines, as nearly as can be ascertained, was able to send the treasurer of his company $7000 at the close of last month. This makes the total transmission to the New York office during the past three months aggregate $20,000.

MANVILLE SMELTING-WORKS.—The work of improving and enlarging these works is nearly completed, and the establishment now contains three large and superior furnaces. Only one of these is in blast at present, but the others will be blown in as soon as th roads improve.

MATCHLESS.—A great deal of exploration-work is in progress in the northern portion of this property, prominent among which are two winzes, which are now sinking in the incline of the lower workings. One of these winzes is situated near the Robert E. Lee line, and explores the ground to a depth of 350 feet from the surface. It is still in limestone. The other winze is some distance to the northwest of the one described, and equally deep. It shows a mass of friable quartzite.

SMALL HOPES.—The ore-shipments for April, despite the difficulties encountered in moving ore, reached 1800 tons.

SAN JUAN COUNTY.

ZULU GOLD AND SILVER MINING COMPANY.—Work has begun on the Zulu with a small force. The lode is a continuation of the Smuggler, and is developed by a drift of 100 feet and a shaft of 60 feet. The pay rock is a gold-bearing quartz. The same company owns the Orso, on which preparations are making to resume work. Shipments will be made from both properties this season, and the question of erecting a mill is discussed.

DAKOTA.

CHARLES MIX COUNTY.

An option has been secured by Chicago capitalists on the Atwater, Convention, Pelican, and Harry locations, forming a block 600 by 3000 feet and developed by four shafts ranging in depth from 60 to 100 feet. They are situated about two miles east of Greenwood. Many tests of ore from the locations have been made, and all of a very satisfactory character. An effort is making to secure temporarily ten stamps of the Greenwood mill for the purpose of crushing some of the ore from the locations named, pending the removal of the Welcome mill from Bald Mountain to the vicinity of the group. A thorough test of the property will be made before introducing more extensive machinery.

LAWRENCE COUNTY.

CALEDONIA.—The report for the week ended April 26th shows that the winze advanced 3½ feet, making a total of 92 feet. The south cross-cut encountered the hanging-wall and the south drift was continued which advanced 8 feet, making a total of 110 feet. Ore produced from 425-foot level, 813 tons; cave, 476 tons; total, 1289 tons.

EMMET SILVER MINING COMPANY.—The company has been organized with a capital stock of $1,250,000, par value $5 each. The property consists of four full claims—the Emmet, Anne, Silver Eagle, and Lead City. Twenty-five thousand shares of the treasury stock will be offered at five cents a share. Active developments on the property will begin at once. The proceeds of the sale of treasury stock will be expended on the mines.

INDEPENDENCE.—The mines of this company, which has just been organized, consist of three full claims in the Carbonate District, namely, the Independence, Medford, and Summit mines. A contract has been let to sink the shaft fifty feet deeper, and work will begin immediately.

MONARCH GOLD MINING COMPANY.—The capitalization is $2,500,000; shares of a par value of $10 each. The property consists of nine full claims on Two Bit, just two miles from Deadwood. The company also owns a mill-site. The directors had authorized the sale of 40,000 shares at 5 cents a share, and it is stated the whole block was taken within two hours, and 10 cents freely offered for more, but none could be had at that price. The company proposes to push developments and build a mill at an early day.

SEGREGATED IRON HILL.—The hoisting-works, pump, etc., purchased by this company from the Iron Hill Company, will be moved on to the ground of the former, and the work of development prosecuted.

IDAHO.

ATLANTA HILL GOLD MINING AND MILLING COMPANY.—Constant A. Andrews, president of this company, has been sued in the Supreme Court of New York City by the company for the recovery of $1500, with interest from September 6th, 1883, paid to him as salary. The complaint alleges that at meetings of some of the trustees, at which the defendant's vote decided their action, his salary was fixed at $500 a month, and the payment of $1500 on account was authorized. It is claimed that this action was fraudulent and is void.

QUEEN OF THE HILLS.—It is reported that a block of 10,000 shares has been sold at from $2 to $3 a share. The stock several months ago, it is said, was quoted at 5 cents a share. The mine is reported looking well. They are down to the tenth level, which is between 600 and 700 feet below the surface. A cross-cut has been run 120 feet, in which they have cut three veins. One car-load of ore is shipped daily. The company is working in the mine and concentrating mill about 115 men.

MEXICO.

The Mexican *Financier* reports the following :

Mining matters at Pachuca are dull. Several fine properties there are awaiting capital to improve them, but investors fight shy of a State where taxes are imposed without sufficient warning and bear heavily on business. The State of Hidalgo must reverse its fiscal policy, if investments are tc be attracted.

The Hacienda del Progreso, at Pachuca, has been thoroughly refitted with new machinery, etc., at a cost of over $30,000, which has been paid entirely out of profits, so that its grinding power is now somewhat over 2000 cargas a week. Since the erection of the last new pans, the Hacienda has left a profit of $1400 a week.

The gold fever has taken possession of Mazatlan, owing to discoveries made of gold placers near Cananea in the State of Sinaloa. A large number of prospectors have gone to the gold country from Mazatlan.

The Legislature of the State of Sinaloa has repealed the law that was to have gone into effect there the 13th of April, taxing reduction-works.

A new silver mine has been discovered in the Sierra de la Escondida, State of Nuevo Leon. By the ruins of many houses found at the mine, it is known that it was anciently worked on an extensive scale.

MICHIGAN.

COPPER MINES.

OSCEOLA.—The April product was 166 tons of mineral, compared with 172 tons in March, 165 tons in February, and 165 tons in January.

TAMARACK.—The mine product in April was 201 tons of mineral, against 220 tons in March, 200 tons in February, and 174 tons in January. The product was lessened by Good-Friday and an accident caused by falling timber, which latter necessitated treating a lot of low-grade ore.

IRON MINES.

ADAMS.—Parties owning property in the Gogebic range have formed this company.

NANAIMO.—The company is getting ready to pump out the old workings.

SUNDAY LAKE.—This company has been incorporated for the purpose of exploring and prospecting on a tract of land in the Gogebic range owned by the men forming the company.

MONTANA.

DEER LODGE COUNTY.

GRANITE MOUNTAIN.—To increase the capacity of the present thirty-stamp mill, an additional thirty stamps have been decided upon, and the erection is to begin without delay. During the week ended the 4th inst., the company shipped 33 bars of silver bullion, valued at $35,100.

INTER-ALTA MINING AND REDUCTION COMPANY.—This company has been organized at Anaconda, with a capital stock of $100,000.

JEFFERSON COUNTY.

HELENA MINING AND REDUCTION COMPANY.—From a report just issued, we learn that the main works at Wickes, the concentrator at Corbin and at Comet, the hoisting-works and tramway are all in good running order and in full blast. With the good showing in the lower part of the Alta mine and the expected increase of the smelting ore at the Comet mine, it is thought the bullion production will soon be increased. This, in connection with the apparent increase of the custom ores, may necessitate an increase of the plant.

NEVADA.

ELKO COUNTY.

GRAY EAGLE.—This company has been incorporated with a capital stock of $10,000,000, divided into 100,000 shares, to carry on operations in this county. The directors are William Goldstein, Leopold Allenberg, John J. Weglein, Adolph Steinberger, and Charles Allenberg.

HUMBOLDT COUNTY.

PENNSYLVANIA.—A ten-stamp mill is erecting at this mine, situated about ten miles north of Mill City.

LINCOLN COUNTY.

KLINGINGSMITH.—The operations of the five-stamp mill recently erected at this mine, at Bullionville, have been so successful that five additional stamps are to be added.

STOREY COUNTY—COMSTOCK LODE.

From the Virginia *Chronicle* we take the following :

CONSOLIDATED CALIFORNIA & VIRGINIA.—During the week ended the 24th ult., 1052 tons of ore were shipped to the Morgan mill, and 1686 tons to the Eureka mill. The average value of ore milled during this period, according to assays from battery samples, was $14.28 a ton for that crushed at the Morgan mill, and $13.77 for that crushed at the Eureka mill. During the week, bullion valued at $36,135.25 was shipped to San Francisco.

HALE & NORCROSS.—On the 27th ult., the hoisting of ore to the surface was begun through the Combination shaft from the 3100 level of the Hale & Norcross mine. This ore has been accumulating in the drift on that level, and was stoped out in driving the slanting uprise above cross-cut No. 3. There are between 200 and 300 tons to be hoisted. The uprise is said to be still in ore.

SIERRA NEVADA.—The formation in the face of west cross-cut No. 2 on the 520 level is gradually growing softer. The quartzite is less seamy and breaks better, and a corresponding improvement in the distance advanced during the past week is observable over that made the week previous. There is also a perceptible increase in the percentage of quartz in the composition. One shift is engaged in extracting ore from the gold-bearing vein near the summit of Cedar Hill.

NEW YORK.

DUTCHESS COUNTY.

MANHATTAN.—The iron ore mines of this company, at Sharon station, near Amenia, are to be sold under foreclosure at Poughkeepsie on the 11th inst.

NORTH CAROLINA.

ANSON COUNTY.

MIKADO.—The mine has been unwatered, and will soon be in full running order.

HENDERSON COUNTY.

BOILSTON.—A company has been organized with a capital of $100,000. It proposes to go to work soon.

ROWAN COUNTY.

GOLD KNOB.—New York parties have taken a lease to mine and mill a given number of tons of ore each year for three years ; the owner of the property to receive $2.50 a ton royalty. The lessees will put in a plant of machinery consisting of a 100 horse-power boiler, 80 horse engine, 20-stamp mill, 5 Frue vanning machines for concentrating purposes. They also have the privilege to purchase at any time during life of lease on terms named therein.

PENNSYLVANIA.

LEHIGH COUNTY.

The 32 new oxide furnaces recently erected at the Friedensville zinc mines have started up and are now in good working order. Zinc oxide of fine quality will be manufactured in the furnaces, from ores taken from these mines.

UTAH.

MILLARD COUNTY.

Messrs. Crafts & Howard have ordered a mill to be erected on their property in Detroit District at once. It is to consist of an engine, boiler, rock-breaker, copper plates, three sets of Bowers rolls, and all othe necessary machinery for a mill of twenty tons' capacity. The ore developments in their own and other mines of the camp are said to be sufficient to warrant them in this venture.

SALT LAKE COUNTY.

OLD TELEGRAPH.—This mine is worked by a half-dozen or more lessees. The ore produced is worked at the West Cottonwood works, owned by the French Company.

YOSEMITE.—The new concentrating mill was to have started up this week. It has a capacity of 40 or 50 tons of ore per twelve-hour shift, reducing to about ten tons concentrates. This mill is so located as to be reached by the railroad should the proposed branch of the Bingham road be extended there.

TOOELE COUNTY.

ADA.—An important strike has been made in this mine at Stockton.

VIRGINIA.

WYTHE COUNTY.

WYTHE LEAD MINE COMPANY.—The Norfolk & Western Railroad Company has proposed to this company to increase the capacity of its works, by putting up zinc-works, etc., so as to give the Cripple Creek X a certain amount of freight, and it will build, at once its road up to the mine.

BULLION PRODUCTION FOR 1886—SPECIAL OFFICIAL REPORTS

MINES.	States.	Month of March.	Year from Jan. 1st, 1886.
		$	$
Alice, G. S	Mont.	.....	166,714
Boston & Montana, G.	Mont.	66,560	215,419
Caledonia, G.	Dak.	19,735	61,971
Christy, S.	Utah.	20,285	63,880
Chrysolite, S.	Colo.	23,596	59,267
Colorado Central, S.	Colo.	20,533	68,709
Daly, S.	Utah.	66,510	126,728
Deadwood-Terra, G.	Dak.	44,814	108,820
Derbec Blue Grav., G. S.	Cal.	17,626	47,347
Elkhorn, G. S.	Mont.	22,644	65,195
Eureka, S. L.	Nev.	..	15,905
Father de Smet, G.	Dak.	26,023	61,376
Freeland, G. S. C	Colo.	28,114	72,206
German Consolidated, G.	Colo.	20,500	53,673
Granite Mountain, S.	Mont.	161,700	361,300
Head Center Cons., S.	Ariz.	2,697	4,633
Hecla, G. S. L. C	Mont.	82,157	251,303
Holmes, S.	Nev.	.....	115,791
Homestake, G.	Dak.	106,629	300,461
Hope, S.	Mont.	15,000	27,400
Iron Hill, S.	Dak.	36,908	123,908
Kentuck, S.	Nev.	458	458
Lexington, G. S	Mont.	91,049	218,637
Montana Limited, G. S.	Mont.	145,600	356,705
Moulton, G. S.	Mont.	76,450	138,500
New Pittsburg, S	Colo.	2,250	5,230
Ontario, S.	Utah.	.....	384,686
Plymouth Consolidated, G.	Cal.	53,854	155,148
Plutus, G. L. C	Colo.	14,778	67,874
Ropes, G. S.	Mich.	2,601	7,997
Standard Consolidated, G.	Cal.	23,654	53,251
Tombstone, G. S. L.	Ariz.	*58,714	194,336
Total		.....	$3,955,129

G., gold ; S., silver ; L., lead ; C., copper ; M., mica. Silver valued by the different companies from $1@$1.25 per ounce ; gold, $20.67. *Not including value of lead and copper. †Royalty. ‡Net. §Ore sales. ‖Not official. —— No shipments during month mentioned.

MARKETS.

NEW YORK, Friday Evening, May 7.

Silver.

DATE.	London. Pence.	N. Y. Cents.	DATE.	London. Pence.	N. Y. Cents.
May 1...	46	100⅝	May 5	45⅞	100¼
3...	45 15-16	100¼	6.	45⅞	100¼
4...	45⅞	100⅜	7.	45⅞	100¼

The decline in silver abroad is owing to an almost complete absence of demand for Eastern Exchange, in consequence of stagnation in East India business.

Foreign Bank Statements.—The governors of the Bank of England, at their regular weekly meeting, advanced the bank's minimum rate of discount from

2 to 3 per cent. During the week, the bank lost £364,512 bullion; and the proportion of its reserve to its liabilities was reduced from 41 7/16 to 39 3/16 per cent, against 50 7/16 per cent at the same date last year. On the 6th inst., the bank gained £129,000 on balance. The weekly statement of the Bank of France shows a gain of 22,600,000 francs gold and a gain of 4,843,000 francs silver.

Gold was bought to-day for shipment to Europe by A. Belmont & Co., amounting to $250,000, and by Kessler & Co., amounting to $100,000. The total shipments since May 3d have been $2,550,000.

The Board of Managers of the Metal Exchange have decided on making the first call at half-past ten A.M., instead of at half-past eleven, as heretofore.

The strikes and threatened strikes throughout the country are greatly demoralizing business. Iron-works and other consumers of metals are closing down or are reducing their make on account of the uncertainties of the future, and there appears to be every probability that great numbers of men will soon be out of work without striking, and those who can find work will have to accept lower wages than are now ruling, and against which strikes have been inaugurated.

Nothing could have been more inopportune or unfortunate than the recent and existing strikes. They have done irretrievable injury to trade.

Copper.—This market is extremely quiet, and though prices are nominally unchanged, very little business is being done and very little inquiry is being made. We quote nominally, Lake at 11½c.; Orford and Baltimore, 10@10½c.; P. S. C., 10@10½c., though rumors of lower prices for same brands are still current.

The most important item of news to the trade is the strike at Butte, Montana. The Knights of Labor on the Utah & Northern Branch line of the Union Pacific to Montana have ordered a strike of brakemen on account of dissatisfaction over the recent method adopted by the company of grading pay according to the number of miles run instead of paying a uniform rate of $65 a month.

This morning, we are advised by a special telegram from Butte that "the Anaconda mine and smelter are closed, on account of having neither coal, coke, nor salt; also the Moulton is closed, and if the strike lasts a few days longer, almost all the mills and smelters will close."

It is certainly extraordinary that so great a concern as the Anaconda should carry no stock of coal or salt but such is the case.

The furnaces can scarcely be started up again without some repairs, so that, however brief the strike, it will cause some reduction of the output. The longer it lasts, the better for the copper market, and probably also for the Butte companies. It is said that Clark's has about six days' supply of fuel, and that the Parrot might hold out for ten days. The Butte reduction-works has shut down.

It is said that the Anaconda proposes putting up a Bessemerizing plant, like that of the Parrot.

Chili Bars in London have suffered a decline during the week from £41 12s. 6d. to £40 10s. on the 5th and yesterday. To-day, the market is up again to £40 17s. 6d. Best Selected, £45 10s. The first shipment of copper (21 tons!) from the Boleo Company has been announced. It is said the company has, or proposes to have, an office at San Francisco, one at Guaymas, one at the mines, and one in Paris. And it is further said that the company has some fifteen engineers in its service. There are those who believe that these facts, if facts they be, indicate a cost price for copper considerably higher than the £46 a ton in England, at which we were led to estimate it in a recent number of this JOURNAL.

There were exported from this port during the week 320,286 pounds copper and 1,639,303 pounds of copper matte.

Messrs. Henry Bath & Son, under date of April 17th, 1886, state as follows:

"The Chili charters for the first half of this month are advised as 2000 tons, with price $18.10. and exchange 23⅛d.

"The rise in the dollar price, owing to the fall in exchange, has no doubt stimulated sales on the coast.

"The price of Chili Bars has fluctuated between £41 17s. 6d, and £41 5s., and is to-day at £41 10s.@£41 15s. A fair business has been doing, but it has been checked by the political state of affairs here.

"The position continues very sound, and with the advent of orders for consumption that should come in before long, affairs would look very cheerful.

"Deliveries for the fortnight have been 3084 tons, against imports of 1740 tons, reducing stock by 1344 tons. Total visible supply shows 58,373 tons, against 58,486 tons last fortnight.

"American arrivals have been again small, being 294 tons into England and 110 tons into France = 404 tons, against 2326 for the same period last year.

"Furnace material continues scarce, and the latest transaction was at 8s. 6d. for distant Anaconda matte.

"Transactions comprise 365 tons Quebrada and American ore at 8s. and 8s. 3d.; 1250 tons Anaconda matte, mostly to arrive, at 8s. 6d.; and 300 tons Chili regulus at Swansea at the same figure, together with 250 tons Spanish precipitate at 8s. 3d. and 8s. 6d. per unit.

"During the last few days, Mason & Barry have declared a dividend of 3s. 6d. for the second half of 1885, making 7s. 6s. for the year, per £10 share; while the Tharsis Company's return is 4s. for the same period, making 12s. for the year, per £2 share."

Tin.—There has been a very active market in this metal, and the price has advanced, though the London price has been steady or declined from £94 10s. to £94 5s., and to-day is cabled £94 7s. 6d., with three months £94 17s. 6d.

No less than 155 tons were posted as sold at the Metal Exchange during the week at 20·75@20·85c., all spot, May or June delivery. We quote 20·80@20·85c. in round lots. No reason is apparent for the activity at the Exchange.

Lead.—There is nothing of importance in this market. The representative of the Omaha Works continues to offer (mostly to those who don't want lead) small lots at 4·70c., and there was rumor of 50 tons having been sold at that figure. We quote Domestic, 4·75c., with sales of 150 tons Richmond at that price, and Foreign, 4·85c. About 442,322 pounds of lead were imported at New York during the week.

In manufactures, we quote Sheet-Lead, 6@6¼c. net, and Lead Pipe, 5·40c. net. Shot, Buck, and Chilled, 6c., in 25-pound bags.

Messrs. Everett & Post, of Chicago, telegraph us as follows to-day:

Market very dull, and no buyers. Strikes affecting business seriously. Several consumers and one refining company here have shut down. Offerings are very light; price, nominally 4·60@4·65c.

Messrs. John Wahl & Co., of St. Louis, telegraph to us as follows to-day:

Under a light business, the market has remained practically unchanged. We may quote both Hard and Soft lead worth 4·52½@4·55c., but held a shade higher. Sales will scarcely foot up 200 tons at 4·55c.

Spelter.—The market remains unchanged. We quote 4·55@4·70c. for Missouri, and 6¼@6½c. for New Jersey. Foreign Spelter is quoted 5@5⅛c.

New Jersey Zinc Oxide is quoted 3¾@4¼c.

Silesian Spelter in London was quoted to-day £14 2s. 6d.

Sheet-Zinc is worth 4½@5·60c.

The Rhenish-Westphalian group of zinc furnaces—a part of the raw zinc union, which comprises all the zinc producers of Europe—had, on the 1st ult., 2600 tons less zinc in stock than at the same time last year. On the 1st inst., the stocks of zinc at Upper Silesian zinc-works were 208,000 centners less than a year ago.

Antimony.—This market is quiet at 8½@8¾c. for Hallett's, 9⅛c. for Cookson's here, and in London £33 10s. for Hallett's. A good deal of Cookson's was offered here during the week.

Nickel.—We quote 70c. nominal, though this price is freely shaded by the New Caledonia nickel, which is forced on our market; 8000 pounds of nickel were imported this week.

Bismuth.—Is quoted at $2@$2.25 a pound, the latter price for small quantities; 2228 pounds were imported during the week.

Aluminium—Is quoted at 90c.@$1 an ounce. The aluminium now here is held in a single hand, and we have heard as much as $1 20 an ounce has been asked for it.

Sundry Quotations—New York Prices.

Acid—Sulphuric, 60°, 1c; 66°, 1·1@1¼c.; Muriatic, 18°, 1¼@1½c.; 20°, 1½@1¾c.; Nitric, 36°, 5½c.; 42°, 7@7½c.
Alkali—36 p. c, 1·25c.; refined, 1·40c.
Alum—p. lb., lump, 1¾c.; ground, 1⅞c; P. ton, Liverpool, lump, £5 5s.; Sulphate of Alumina, £4 12s. 6d.
Ammonia—Sulphate, 3¼c.
Arsenic—white, 2c.; red, 6¼c.; P. ton, Plymouth, £8 10s. Arsenic remains in full supply with a very limited inquiry. We hear of sales of Refined Canadian, 175 kegs, at prices from 2@2¼c. during the past week. The quality of this arsenic is reported to be the best in the market.
Asbestos—c. i. f. Liverpool, p. ton, £20.
Asphaltum—Trinidad.
Barytes—Sulph. No. 1, casks, Runcorn, p.ton, £3 7s.; No. 2, bags, £2; N. Y., prime white, p. ton, $18; foreign, $20; Off color, $13.
Bleach—over 35 p. c., 1½@1·65c.
Borax—p. lb, 7@8c.; Refined, p. ton, Liverpool, £31.
Brimstone—crude, best 2ds, $22; 3ds, $21.
Chalk—4c.
China Clay—English, $13.50@$17; Southern, $11.50.
Chrome Yellow—6@18c.
Cobalt Oxide—2·25c.
Copper Sulphate—English Wks, p. ton, £15; Precipitate, p. unit, 8s. 6d.
Copperas—common, ·60c.; best, 1¼c; P. ton, in casks, Liverpool, £42 ts.
Emery—grain, 3½c.; flour, 2¼c.
Kainit—p. ton, $7.15@$7.60.
Lead—Red, 6@6¼c.; White Am. in oil, 6½@7c.; English, 8½c.
Litharge—flake, 6c.; C. i. f. Hull, £14 5s.
Manganese—lump, 70 p. c., c. i. f. Liverpool, £3 2s. 6d.; 1s. 6d. per unit, up or down.; Ground, p. ton, £6.
Mineral Wool—1@3c.
Paints—Venetian Red, English, H. R. & Co.'s (M), $1.40; H. R. & Co.'s (H), $1.20; H. R. & Co.'s (F. V. A.), $1.12½; American Venetian Red, 1¼@1¾c.; Spanish Brown, English, 1@1¼c.; American, ⅞@1c.; English Indian Red Super, 6@7c.; English Persian Red, 16c.; English Turkey Red, 6c.; English Tuscan Red, 8c.; English Rose Pink, 9c.; English Chrome Yellow, 8@18c; English Drop Blacks, 8@12½c.; Ochers, French, 1½@5c.; American, 1@2c.; Umbers, Turkey Burnt, 3@4c.; Turkey Raw, 2½@3c.; American, 1½c.; Sienna, Italian Burnt, 6@7c.; Italian Raw, 5@6c.; American, 2@3c.
There is a good demand for English Venetian Reds, and the shipments are being sold from dock at satisfactory prices to importers. We hear of the following sales of Hoyle, Robson & Co.'s Venetian Reds: 100 bbls. (M), $1.40@$1.45; 175 bbls. (H), $1.20@$1.30; 280 bbls. (F. V. A.), $1⅛@$1.15. The fine color trade is also active. The Western strikes are to some extent being felt here.
Phosphate Rock—p ton, $8; ground, $10.50.
Plumbago—Ceylon, 4@5c.; American, 6@9c.
Potash—Chlorate, 16½@17c.; Carbonate, 4½@5½c.; Caustic, 7½@8c.; Muriate, 1¾c.
Pumice-stone—Selected, 2¼@2¾c.; Original, cks., 1⅝@1½c.; Lumps, 3@5c.; powdered, 2@3c.
Pyrites—Non-cupreous, N. Y., per unit, 10@12c.
Quicksilver—p. lb., London, £6.
Rotten stone—England, powder, £3; lump, £4; N. Y., p. lb., powdered, 3½c.; lump, 6c.
Salt—Liverpool, ground, 70c.; Turk's Island, 25c.
Salt Cake—·65@·70c.
Saltpeter—crude, 4¾c.; Refined, 6@8c.
Soda Ash—Carb, 48 p. c., 1·35c.; Caustic, 48 p. c., 1·35c; 70 p. c., 2·45c.; Sal, English, ·75c.; American, ·90c.
Talc—c. i. f. Liverpool, p. ton, £4 5s.; French, N. Y., 1¼c.; Domestic, ·6c.
Vermilion—American, 8@30c.; English, 55c.
Vitriol—blue, ordinary, 4½@4¾c.; extra, 4¾c.
Zinc Oxide—American, dry, 3½@4c.; Liverpool, £17 10s.; Sulphate, p. ton, £8 9s.

Importations at New York.

Antimony—33 casks, Bruce & Cook, London.
Asphaltum—34 sacks, Thebaud Brothers, from Frontera; 700 tons, Watson & Farr, from Trinidad.
Arsenic—100 casks, Schering & Glatz, Hamburg; 50 casks, W. H. Schieffelin & Co., Hamburg.
Barytes—Carbonate, 50 tons, Hammill & Gillespie, from Newcastle.
Coal—Cannel, 1800 tons, Perkins & Co., from Leith; 2463 tons, Consolidation Coal Company, from Cardiff.
Cement—3150 casks, Merchants' Bank of Canada, from London; 2500 casks, Canadian Bank of Commerce, from London; 1400 casks, for M. Taylor, from London; 4000 casks, order, from London; 500 casks, Marcial & Co., London; 1120 bbls., Merchants' Bank of Canada, Hamburg; 500 casks, E. Thiele, from Hamburg; 1680 bbls., order, from Hamburg; 1000 bbls., G. Gravitz, Copenhagen
Iron—Spiegel, 880 tons, order, from Amsterdam; a quantity ferro iron, Crocker Brothers, from Liverpool; 150 tons, Crocker Brothers, from Liverpool; 517 tons, order from Newcastle; 240 tons, Naylor & Co., from Glasgow; 400 tons, C. S. Perkins, from Middlesborough; 500 tons, order, from Hull. Pig—667 tons, order, from Newcastle; 590 tons, order, from Glasgow; 400 tons, G. W. Stetson & Co., from Glasgow; 200 tons, Crocker Brothers, from Glasgow; 467 tons, order, from Liverpool.
Lead—20 pigs, Caswell & Co., from Havre; 10 bbls., F. Alexandre & Son, from Hamburg; 1575 pigs, order, Hamburg; 19 cases, W. H. Dumont & Co., Bremen.
Manganese—17 casks, J. Lee & Co., from Glasgow.
Salt—502 tons, 10,300 sacks, J. P. Robinson & Co., Liverpool; 75 do., Todd & Co., from Liverpool.
Silica—233 sacks, Heller & Merz, Hamburg.
Strontian—40 bbls., order from Hamburg.
Sheathing—95 cases for C. L. Pierson & Co., from Bristol.
Type Metal—2711 ingots for J. Fraser, from Bristol.
Zinc, oxide—250 bbls., G. A. & E. Meyer, from Havre; 100 bbls., G. A. & E. Meyer, from Antwerp.

ENTERED FOR CONSUMPTION.

Arsenic—750 tons, from Swansea.
Asphalt, crude—700 tons, from Trinidad.
Blasting gelatine—4 cases, from London.
Kainit—440,920 pounds, from Hamburg.
Magnesite—300 tons, from Trieste.
Ocher—50 bbls., from Marseilles.
Oxide zinc—50 bbls., from Antwerp.
Sulphur, crude—292 tons, from Yokohama.

IRON MARKET REVIEW.

NEW YORK, Friday Evening, May 7.

American Pig.—This market is weaker, and though there is no change in prices, yet if it became necessary to sell a round lot of say 1000 tons, the present quotations would have to be lowered considerably. The same condition of affairs appears to obtain in most of the other markets, except Philadelphia, where "booming reports" (which are generally discredited) are sent out—the stoppage of the works of some consumers, the lessened consumption of others on account of the disorganization of business by the strikes. We continue to quote $18@$18.50 for No. 1 X; $17@$17.50 for No. 2 X; and $16@$17 for Forge, standard Lehigh brands, tide-water delivery. For special irons, 50c. and $1 more is asked.

Scotch Pig.—Prices remain unchanged both here and in Scotland. We quote as follows: Coltness, $20; Gartsherrie, $19; Summerlee, $19.50; Dalmellington, $18@$18.75; Langloan, $19. Freights range about 4s., 5s. being asked. Cables to the Metal Exchange quote: Coltness, 47s.; Summerlee, 46s.; Langloan, 44s.; Gartsherrie, 42s. 9d.; Glengarnock, 42s. 9d.; Dalmellington, 41s.; Eglinton, 38s. 9d.; Warrants, 38s. 3d.; Middlesboro', No. 3, 29s. 9d. Elsewhere we give the imports, which amounted to about 3000 tons, part Scotch and part Bessemer.

Bessemer Pig.—The market is weak. We quote Domestic at $18 at the furnace, and Foreign, ex ship, $18.50@$19, the latter figure being asked without takers.

Spiegeleisen.—We quote English and German, $25@$26. Eighty per cent ferro-manganese is quoted at $66@$67. About 4000 tons of foreign Spiegeleisen arrived at this port during the past week.

Structural Iron and Steel.—Prices remain unchanged. We quote Angles, 1·90@2·10c. delivered; Tees, 2·35c.; Iron Beams and Channels, 3c. for American from dock. Steel Angles, 2·35@2·40c.

Plate Iron.—Common Tank, 2@2·15c.; Refined, 2¼c.; Flange Iron, 3¼@3·5c.; Extra Flange, 4@4·25c.

Bar Iron.—Refined we quote at 1·75@1·90c.; Common, 1·55@1·70c. Store prices are ·10@·20c. higher.

Steel Plates.—We quote 2½c. for Tank; 3@3¼c. for Boiler and Ship Plates; 3¾@4c. for Flanges; 4¼@5¼c. for Extra Flange and Fire-Box Plate.

Merchant Steel.—American Tool Steel, 7@10c.; special qualities, 12@18c.; Crucible Machinery, 4½@5½c.; Bessemer and Open-Hearth Machinery, 2½@2¾c.

Old Rails.—We may quote Tees and Double-Heads at $19@$20. Foreign Tees are offered at $20.

Steel Rails.—We hear that the sales of English steel rails to the Canadian Pacific at Montreal amounted to 25,000 tons, at $20.75 a ton. This, we believe, is the lowest price at which steel rails have ever been sold in Canada. We understand the price asked was £4 5s. 6d. a ton.

There is a rumor that the Anglo-German rail combination will be renewed. At the present extremely low prices of foreign rails, it behooves our manufacturers to use every effort to improve the quality of our own rails; for the difference in price between $37, at which English rails can be purchased, and $35, charged by Eastern mills, is so little, that a slight difference in quality would turn the orders to Europe.

Scrap.—Quotations are unchanged at about $20 for choice lots.

Philadelphia. May 6.

[From our Special Correspondent.]

The iron market has lost very little during the week. The managers of several of the larger furnaces incline to take rather strong grounds concerning the future of the pig-iron trade. The heavy production is absorbed for current requirements, and considerable Southern iron has been brought in to the North during the past few weeks, so that the production is by no means beyond the requirements of the market. Nearly all the strong companies have a great deal of iron promised for late spring and summer, and are not in a position to take buyers. Prices seem to be moderately firm excepting in some inferior irons that are always to be had at off prices. Mill irons have been rather quiet, and foundry irons have been doing a little better this week than last, possibly because of the necessities of buyers who have been putting off heavy purchases for some time. No. 1 Foundry is selling at $18@$19; No. 2, $16.50@$17.50; Forge, $16@$17. Some inferior Forge has been selling at $16@$16.50, but is not much in demand anywhere at that price. Inquiries were received to-day from a number of buyers of Forge iron who have very little material on hand. If indications are not deceiving, a good deal of iron will be bought during the coming thirty days, particularly if the strike subsides and general business improves.

Foreign Irons.—There are rumors to-day of some large contracts that may be placed during the next thirty days; but it is thought that business will not be done in this market. Bessemer is quoted at $19; 20 per cent Spiegeleisen, $25.50@$26.

Blooms.—There are some few sales of Charcoal blooms.

Muck-Bars.—Muck-Bars are $29@$30, without much business.

Manufactured Iron.—Country mills are selling 50-ton lots of common iron at $1.55@$1.60. Local mills are doing business in a small way at $1.80@$1.90, and report only a moderate demand. No restriction in demand has been spoken of, but the output has not regained the loss with which it met two or three weeks ago. Every one seems to be waiting for the market to crowd him, and iron-makers are no exception.

Sheet-Iron.—The building demands for galvanized iron are helping that branch of trade, and a number of shipments are making this week to fill local and outside markets. The demand will be heavy during the season. Light sheet holds its own, and card rates are adhered to.

Wrought-Iron Pipe.—The demand is quite active, and the mills are doing all the business they can handle.

Skelp Iron.—One thousand tons of skelp iron were contracted for, and there are negotiations in hand to-day for large lots that will crowd the capacity for some time to come. Quotations are 1·80@1·85c.

Nails.—A moderate demand is maintained in Eastern cities for building interests and store-keepers. Prices, $2.30@$2.40.

Structural Iron.—There are rumors of large transactions pending, but nothing definite is known. Angles are 1·85@2c.; Beams and Channels, 3c.

Steel Rails.—A few thousand tons of steel rails have been booked by Pennsylvania mills at about $35@$35.50. Quotations for large lots are $34.50. There are rumored offers at $34.

Old Rails.—Neither buyers nor sellers are able to agree upon prices, which are nominally $20@$21 at tide-water. Holders are not disposed to meet the views of buyers, and no immediate business is in sight.

Scrap.—No. 1 Scrap sold at $20.50; Cargo Scrap is quoted at $19.50; Steel Scrap, $13@$15.

Pittsburg. May 6.

[From our Special Correspondent.]

The iron market the past week has been a remarkably quiet one. Business men generally seem to be in a quandary, many of them waiting to see what will be the next movement. The demand for iron shows a material falling off in most descriptions. What the new scale of wages will be can only be guessed at until the first of June. There are various rumors about what will be demanded. The consumption of iron seems to have fallen off slightly since our last report, particularly in foundry iron. Prices for certain brands are weaker, and No. 3 Gray Forge can be purchased at 25 cents less. Favorite brands still hold their own, being held generally by parties that are not compelled to sell. There is still an active demand for wrought-iron pipe. The mills in this vicinity are running to their full capacity. The advance in coke that was established since our last adds to the cost of pig-metal; also the advance in freights would indicate that an advance in iron in the near future is among the probabilities. So far as we can learn, there has been no accumulation of stocks. One thing is very evident, prices have not improved as was expected, taking into consideration the increase of cost of production. The only solution to be found for this problem is an advance in prices. Further reductions are out of the question.

Southern Pig-Iron.—Coke, native ore, No. 1 Mill offered at $16 cash, $16.50 4 months; No. 2 mill, $15.50 cash; Mottled, $14@$14.25 cash; No. 3 Hot-Blast, $19.50@$20 cash.

Pig-Iron.—The following are the current rates:

Coke or bituminous:	Lake ore.	Native ore.
Foundry No. 1	$17 50@$18.00	$17.50@$18.00
Foundry No. 2	16.75@ 17 25	16.50@ 17.00
Gray Forge, No. 3	15 50@ 16.00	15.25@ 15.75
" " No. 4	15.00@ 15.25	.... @ .....
White	14.50@ 15 00	14.50@ 15.00
Mottled	15.00@ 15.50	15.00@ 15.50
Silvery	15.50@ 18.50	15.50@ 15.75
Bessemer	19.00@ 19 50	.....@ .....
Charcoal:		
Foundry No. 1	21.50@ 23.00	
Foundry No. 2	20.00@ 20.50	
Cold-Blast	25.00@ 28.00	
Warm-Blast	18.00@ 24.00	

Louisville, Ky. May 6.

[Reported by GEORGE H. HULL & CO.]

There has been no activity in the pig-iron market during the last week. Some furnaces whose iron is inferior have made some sales at low prices, which has created inquiry among buyers who are trying to buy iron of good brands at same figures at which inferior brands were offered. The market may be quoted fully 50 cents off, and we revise quotations accordingly. The feeling, however, is a little more encouraging for a demand in the near future. We quote for cash as below:

PIG-IRON.

Southern Coke No. 1, Foundry	$17.00@$17.50
" " No. 2, "	16.00@ 17.00
" " No. 2½, "	15.50@ 16.00
Hanging Rock Coke, No. 1, Foundry	16.50@ 17.00
" " Charcoal, No. 1 Foundry	19.00@ 20.00
Southern Charcoal, No. 1 Foundry	17.50@ 18 50
Silver Gray, different grades	15.00@ 16.00
Southern Coke, No. 1 Mill, Neutral	15.00@ 15.50
" " No. 2 " "	14.00@ 14.50
" " No. 1 " Cold Short	14.50@ 15.00
" Charcoal, No. 1 Mill	17 00@ 17.50
White and Mottled, different grades	13.00@ 14 00
Southern Car Wheel, Standard Brands	25.00@ 26.00
" " " Other "	21.00@ 22.00
Hanging Rock, Cold Blast	25.00@ 26 00
" " Warm Blast	20.00@ 21.00

COAL TRADE REVIEW.

NEW YORK, Friday Evening, May 7.

Statistics.

Production Anthracite Coal for week ended May 1st, and year from January 1st:

TONS OF 2240 LBS.	1886.		1885.	
	Week.	Year.	Week.	Year.
P. & Read. RR. Co.	115,995	3,178,135	62,373	3,025,744
L. V. RR. Co.	77,197	2,007,259	62,707	1,260,678
D. L. & W. RR. Co.	68,801	1,731,338	28,061	1,234,989
D., & H. Canal Co.	59,518	1,303,344	69,697	917,419
Penna. RR.	51,918	1,036,870	57,280	922,757
Penna. Coal Co.	22,623	395,283	24,487	361,000
Total	396,052	9,652,229	304,605	7,822,587
Increase	91,447	1,829,642	....	.....
Decrease	.....	.....	.....	.....

* Estimated.

The above table does not include the amount of coal consumed and sold at the mines, which is about six per cent of the whole production.

Production for corresponding period:

1881	8,481,532	1883	9,174,165
1882	8,058,218	1884	8,610,380

Production of Coke on line of Pennsylvania RR. for week ended May 1st, and year from January 1st:

Tons of 2000 pounds.

	1886.		1885.	
	Week.	Year.	Week.	Year.
Allegheny Region.	6,930	69,345	3,693	62,990
West Penn. RR.	1,969	32,706	1,276	11,189
Southwest Penn. RR	52,383	701,846	41,441	647,786
Penn. & W. Region	6,414	107,585	3,205	78,301
Monongahela	2,837	37,556	1,919	28,254
Pittsburg Region.	.....	.....	.....	.....
Snow Shoe	.....	9,211	.....	5,923
Total	70,533	958,250	51,534	834,443

The Norfolk & Western Railroad Company reports the shipments of Pocahontas Flat-Top coal for the week ended May 1st, 1886, and year from January 1st as follows, tons of 2000 pounds: 1886—Week, 17,471; year,

DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par value.	Assessments. Total levied to date.	Assessments. Date and amount per share of last.			Dividends. Total paid to date.	Dividends. Date and amount per share of last.		
1	Adams, s. L.	Colo.	$1,500,000	150,000	$10	*				$360,000	Apl.	1886	.10
2	Alice, s. c.	Mont	10,000,000	400,000	25	*				700,000	Mar.	1886	.06¼
3	Amie Con., s. L.	Colo.	5,000,000	500,000	10	*				330,000	Oct.	1883	.05
4	Atlantic, c.	Mich	1,000,000	40,000	25	$280,000	Apl.	1875	$1.00	320,000	Jan.	1886	$1.00
5	Argenta, s	Nev..	10,000,000	100,000	100	295,000	July	1885	.10	40,000	Feb.	1880	.20
6	Barbee & Walker, s.	Utah	1,000,000	100,000	10	*				60,000	Nov	1880	10
7	Bassick, G. S.	Colo.	10,000,000	100,000	100	*				400,000	Mar.	1884	1.00
8	Belle Isle, s.	Nev..	10,000,000	100,000	100	140,000	May	1886	.10	300,000	Dec.	1879	.25
9	Belcher, G. S.	Nev..	10,400,000	104,000	100	2,217,335	ec.	1885	.90	15,397,000	Apl.	1876	1.00
10	Bellevue Idaho, s. L.	Idah.	1,250,000	125,000	10	26,250	Dec.	1883	10	87,500	Dec.	1885	.10
11	Big B'nd Hydraulic, G	Dak..	1,000,000	200,000	5	*				102,000	Apl.	1886	.03
12	Black Bear, G.	Cal..	3,000,000	30,000	100	22,500	Dec.	1884	.25	895,000	May	1883	.20
13	Bodie Con., G. S.	Cal..	10,000,000	100,000	100	274,990	Dec.	1883	.50	1,602,572	Apl.	1885	.50
14	Bonanza Developm't	C & M	3,000,000	300,000	10					135,000	Oct.	1882	.15
15	Bonanza K'g, Cons. S.	Cal..	1,000,000	100,000	10	*				185,000	Feb.	1885	.10
16	Boston & Mont, G.	Mont	2,000,000	200,000	10	*				490,000	May	1886	.15
17	Breece, S.	Colo.	5,000,000	200,000	25	*				2,000	Feb.	1880	.01
18	Bulwer, G.	Cal	1,000,000	100,000	100	40,000	Oct.	1885	.20	175,000	Jan.	1884	.10
19	Caledonia, G.	Dak.	10,000,000	100,000	100	505,000	May	1885	.15	40,000	Feb.	1886	.10
20	Calumet & Hecla, C.	Mich	2,500,000	100,000	25					27,350,000	Jan.	1886	5.00
21	Carbonate Hill, S. L.	Colo.	2,000,000	200,000	10	*				80,000	Apl.	1884	.05
22	Caribou Con., S.	Colo.	1,500,000	150,000	10	*				50,000	Mch	1880	.10
23	Castle Creek, G.	Idah.	100,000	100,000	1					51,000	Oct.	1883	.03
24	Cataipa, S. L.	Colo.	3,000,000	800,000	10	*				270,000	May	1884	.10
25	Central, C.	Mich	500,000	20,000	25	100,000	Sept	1861	.06	1,780,000	Jan.	1886	2.00
26	Christy, S.	Utah	10,000,000	100,000	100	*				10,000	Jun.	1885	.10
27	Chrysolite, S. L.	Colo.	10,000,000	200,000	50	*				1,650,000	Dec.	1884	.25
28	Colorado Central, S. L	Colo.	2,750,000	275,000	10	*				88,750	Apl.	1886	.05
29	Cons. Cal. & Va., G. S.	Nev..	21,600,000	216,000	100	108,000	Jan.	1885	.20	64,800	Feb.	1886	.30
30	Con. Gold Mining, G.	Ga...	500,000	100,000	5	*				108,000	Nov.	1883	02
31	Contention, S.	Ariz.	12,500,000	250,000	50					42,587,000	Dec.	1884	.25
32	Crescent, S. L. G.	Utah	15,000,000	600,000	25	‡				180,000	Sept	1885	.05
33	Crown Point, G. S.	Nev..	10,000,000	100,000	100	2,675,000	Feb.	1882	.25	11,588,000	Jan.	1875	2.00
34	Deadwood-Terra, G.	Dak..	5,000,000	200,000	25	*				900,000	Jan.	1883	.10
35	Derbec B. Grav., G. S.	Cal..	10,000,000	10 ,000	100	90,000	Dec.	1881	.10	130,000	Apl.	1886	.10
36	Dunkin, S. L.	Colo.	5,000,000	200,000	25	*				220,000	Sept	1884	05
37	Elkhorn, G. S.	Mont	1,000,000	100,000	10	50,000	July	1883	.50	115,000	Apl.	1886	.50
38	Eureka Con., G. S. L.	Nev..	5,000,000	50,000	100	450,000	Apl.	1886	1.00	4,817,500	July	1882	.25
39	Evening Star, S. L.	Colo.	500,000	30,000	10	*				1,400,000	Nov	1883	.50
40	Excelsior, G.	Cal..	10,000,000	100,000	100	560,000	Sept	1885	1.00	875,000	Oct.	1881	.25
41	Father de Smet, G.	Dak..	10,000,000	100,000	100	200,000	Nov	1878	1.00	1,125,000	Dec.	1885	.20
42	Franklin, C.	Mich	1,000,000	40,000	25	220,000	Jun	1871		480,000	Dec.	1885	1.00
43	Freeland, G. S. C.	Colo.	5,000,000	200,000	25	*				170,000	Apl.	1886	.10
44	Fresno Enterprise, G	Cal..	5,000,000	100,000	50			Mch	1883	116,000	July	1882	.10
45	Gould & Curry, G. S.	Nev..	10,800,000	108,000	100	3,947,000	Mar.	1886	.40	3,826,000	Oct.	1871	10.00
46	Grand Central, S.	Ariz.	1,000,000	100,000	10					625,000	Dec.	1882	.25
47	Grand Prize, S.	Nev..	10,000,000	100,000	100	570, 00	Apl.	1886	.40	495,000	Mar.	1884	.25
48	Granite, S.	Colo.	125,000	125,000	1					6,250	May	1883	.01
49	Granite Mountain, S.	Mont	10,000,000	400,000	25					1,000,000	May	1886	.25
50	Green Mountain, G.	Cal..	1,250,000	125,000	10	*				212,000	Nov.	1881	.07½
51	Hale & Norcross, G. S	Nev..	11,200,000	112,000	100	4,818,000	Feb.	1886	.50	1,598,000	Apl.	1871	5.00
52	Hall-Anderson, G.	N. S.	150,000	150,000	1					7,000	Jan.	1882	05
53	Hecla Con., S. G. L. C	Mont	1,500,000	30,000	50					1,002,000	May	1886	.50
54	Hel'a Mg & Red, G. S. L	Mont	3,315,000	663,000	5	*				158,250	Jan.	1886	.03
55	Holmes, S.	Nev.	10,000,000	100,000	100	300,000	Sept	1885	.10	75,000	Apl.	1886	.25
56	Holyoke, G.	Idah.	200,000	200,000	1					27,000	Feb.	1883	.10
57	Homestake, G.	Dak..	12,500,000	125,000	100	900,000	July	1878	1.00	3,318,750	Apl.	1886	.40
58	Honorine, S. L.	Utah	5,000,000	250,000	2	25,000	Jun.	1883		62,500	Nov.	1885	.05
59	Hope, S.	Mont	400,000	8,000	50	*				158,252	Oct.	1884	1.50
60	Horn-Silver, S. L.	Utah	10,000,000	400,000	25	*				4,000,000	Nov.	1884	.50
61	Idaho, G.	Cal.	310,000	3,100	100					3,889,800	Dec.	1885	7.50
62	Independence, S.	Nev..	10,000,000	100,000	100	320,000	Aug.	1885	.20	225,000	Sept	1879	.25
63	Indian Queen, S.	Nev..	250,000	125,000	2					368,750	July	1883	03
64	Inyo, G.	Cal..	500,000	100,000	5	*				45,000	Apl.	1882	.05
65	Iron Hill, S.	Dak.	2,500,000	250,000	20	82,500	Oct.	1885		37,500	Apl.	1886	.05
66	Iron-Silver, S. L.	Colo.	10,000,000	500,000	00	*				1,600,000	Apl.	1886	20
67	Jackson, G. S.	Nev..	5,000,000	50,000	1 0	10,000	Nov.	1880	.20	35,000	Mar.	1886	.10
68	Jocuistita, S.	Mex.	2,500,000	250,000	10					1,200,000	Feb.	1885	.50
69	Kentuck.	Nev..	3,000,000	30,000	100	342,000	Nov	1881	.30	1,350,000	July	1884	.10
70	La Plata, S. L.	Colo.	2,000,000	200,000	10	*				610,000	Sept	1882	.30
71	Leadville Cons., S. L.	Colo.	4,000,000	400,000	10	*				370,000	July	1885	.05
72	Lexington, G. S.	Mont	4,000,000	40,000	100	*				565,000	Jan.	1885	2.00
73	Little Chief, S. L.	Colo.	10,000,000	200,000	50	*				780,000	Mch	1885	.10
74	Little Pittsburg, S. L	Colo.	20,000,000	200,000	100	*				1,050,000	Mch	1880	.50
75	Manhattan, S.	Nev.	5,000,000	50,000	100	150,000	July	1879	1.00	437,500	Feb	1888	.25
76	Marguerite, G.	Cal..	500,000	25,000	20					18,750	Oct.	1882	.25
77	Martin White, S.	Nev..	10,000,000	100,000	100	1,150,000	Mar.	1886	25	90,000	July	1879	.30
78	Minnesota, C.	Mich	1,000,000	40,000	25	380,000		1884		1,820,000	Mar.	1876	
79	Mono, G.	Colo.	5,000,000	5 ,000	100	580,000	Jun.	1885	.50	12,500	Mar.	1886	.25
80	Montana, Lt., G. S.	Mont	3,300,000	330,000	10	*				301,950	Jan.	1886	.37½
81	Morning Star, S. L.	Colo.	1,000,000	100,000	10					550,000	Sept	1885	.25
82	Moulton, S. G.	Mont	2,000,000	400,000	5	*				260,000	Mar.	1886	.07½
83	Mount Pleasant, G.	Cal.	150,000	150,000	1	*				105,000	Mar.	1884	.10
84	Mt. Diablo, S.	Nev.	5,000,000	50,000	100	137,500	Jun.	1880	2.00	80,000	July	1885	.20
85	Napa, Q.	Cal..	700,000	100,000	7					290,000	Jan.	1883	.10
86	Navajo, G. S.	Nev..	10,000,000	100,000	100	395,000	Mar.	1886	25	325,000	Jan.	1885	.25
87	N. Hoover Hill, G. S.	N. C.	300,000	120,000	2½	*				30,000	Dec.	1885	.06¾
88	New York Hill, G.	Cal..	5,000,000	50,000	100	62,500	Oct	1885	.15	215,000	Aug.	1882	.10
89	Northern Belle, S.	Nev..	5,000,000	50,000	100	425,000	Jan.	1884	8.30	2,400,000	Apl.	1883	.50
90	North Belle Isle, S.	Nev..	10,000,000	100,000	100	150,000	Mar	1886	.20	30,000	Aug.	1881	.15
91	Ontario, S. L.	Utah	15,000,000	150,000	100					8,325,000	Apl.	1886	.50
92	Ophir, G. S.	Nev..	10,000,000	100,000	100	3,932,800	Feb.	1886	30	1,595,000	July	1882	1.00
93	Original, S. C.	Mont	1,500,000	60,000	25	*				114,000	Oct.	1884	.05
94	Osceola, C.	Mich	1,250,000	50,000	25	480,000	Apl.	1876	1.60	972,500	Sept	1884	.25
95	Oxford, G.	N. S.	125,000	125,000	1	*				34,500	Oct.	1885	.02
96	Paradise Valley, G. S	Nev.	10,000,000	100,000	100	47,000	Mar.	1882	.15	60,000	Feb.	1886	.10
97	Pleasant Valley, G. S.	Cal..	10,000,000	100,000	100	40,000	Mar.	1884	.10	30,000	Dec.	1882	.05
98	Plutus, G. S. C. L.	Colo.	2,000,000	200,000	10	*				20,000	Feb.	1886	.10
99	Plymouth Con., G.	Cal..	5,000,000	100,000	50	*				1,650 000	May	1885	.25
100	Prussian, S. L.	Colo	1,500,000	150,000	10					132,000	Jan	1883	.10
101	Quicksilver, pref., Q.	Cal..	4,300,000	43,000	100					731,400	Feb.	1886	1.50
102	" com., Q.	Cal	5,700,000	57,000	100					151,000	July	1882	.40
103	Quincy, C.	Mich	1,000,000	40,000	25	200,000	Dec.	1862		4,330,000	Jan.	1886	4.00
104	Richmond, S. L.	Nev..	1,350,000	54,000	25	*				4,177,587	May	1886	1.25
105	Ridge, C.	Mich	50 ,000	20,000	25	220,000	Mar.	1886	.50	10 ,000	Feb	1880	.50
106	Rising Sun, S.	Dak..	750,000	150,000		*				52,000	May	1881	.07½
107	Robinson Con., S. L.	Colo.	10,000,000	200,000	50	*				585,000	Mar.	1886	.05
108	Robert E. Lee, S. L.	Colo.	10,000,000	500,000	20					100,000	Dec.	1882	.10
109	Rooks, G.	Vt..	500,000	50,000	10	*				61,000	Apr	1885	.30
110	San Francisco, C.	Cal..	5,000,000	50,000	100	45,000	Sept	1880	.50	20,000	Feb.	1885	.05
111	Savage, S.	Nev..	11,200,000	112,000	100	6,100,000	Jan.	1886	.50	4,460,000	July	1889	3.00
112	Security L. Mg, Mfg.	Colo.	1,000,000	100,000	10	*				50,000	July	1884	*
113	Shoshone, G.	Idah.	150,000	150,000	1					7,500	Apl.	1883	.01
114	Sierra Buttes, G.	Cal..	225,000	22,500	10					1,430,639	Apl.	1886	.25
115	Sierra Grande, S.	N. M.	2,500,000	500,000	5					860,000	Sept	1884	.25
116	Sierra Nevada, G. S.	Nev..	10,000,000	100,000	100	5,922,698	Jan.	1886	.25	102,000	Jan.	1871	1.00
117	Silver Cord, G. S. L.	Colo.	5,000,000	500,000	10					225,000	Nov.	1883	.25
118	Silver King, S.	Ariz.	10,000,000	100,000	100					1,675,000	May	1886	.25
119	Silverton, G. S. L.	Colo.	2,000,000	200,000	10	*				52,000	May	1886	.02
120	Small Hopes, Cons., S.	Colo.	5,000,000	250,000	20	*				1,937,500	Mar.	1886	.20
121	Smuggler, S. L.	Colo.	600,000	60,000	10					66,700	Aug.	1883	.25¼
122	Socorro, C.	N. M.	250,000	2,500	100					4,000	Mch	1882	.00
123	South Yuba, G.	Cal..	2,000,000	40,000	50	*				150,000	Oct.	1881	.75
124	Spring Valley, G.	Cal..	200,000	200,000	1	*				50,000	Jan.	1881	.25
125	Standard, G. S.	Cal..	10 000,000	100,000	100	25,000	Oct.	1884	.25	4,425,000	Mar.	1884	.25
126	Stormont, S.	Utah	500,000	500,000	1	*				155,000	Nov.	1881	.05
127	St. Joseph, L.	Mo..	1,100,000	110,000	10	*				493,000	Dec.	1885	.20
128	Syndicate, G.	Cal..	10,000,000	100,000	100	38,729	July	1882	.15	48,308	Sept	1885	.10
129	Tip Top, S.	Ariz.	10,000,000	100,000	100	250,000	Sept	1883	.25	100,000	Nov.	1881	.20
130	Tombstone, G. S. L.	Ariz	12,500,000	500,000	25	*				1,250,000	Apl.	1882	.10
131	True Fissure, G. S. L.	Utah	1,500,000	150,000	10	*				75,000	Jun.	1883	.15
132	United Verde, C.	Ariz.	3,000,000	300,000	10	*				97,500	Feb.	1884	.20
133	Valencia, M.	N. H.	150,000	1,500	100	*				41,250	Apl	1886	2.50
134	Vizina, S.	Ariz.	5,000,000	200,000	25	*				140,000	Apl.	1882	.10
135	Yellow Jacket, G. S.	Nev..	12,000,000	120,000	100	5,448,000	Dec.	1885	.75	2,184,000	Aug.	1871	1.50

NON-DIVIDEND-PAYING MINES.

	Name and Location of Company.		Capital Stock.	Shares. No.	Shares. Par Value.	Assessments. Total levied to date.	Assessments. Date and amount per share of last.		
1	Agassiz Cons., S. L.	Colo.	$2,500,000	50,000	$50	*			
2	Albion, S. L.	Nev..	15,000,000	150,000	100	$577,000	July	1883	.50
3	Allouez, C.	Mich	2,000,000	80,000	25	240,000	Feb.	1884	.50
4	Alpha Con., G. S.	Nev..	3,000,000	30,000	100	430,000	Mar	1886	.50
5	Alta, S.	Nev..	10,080,000	100,800	100	1,951,400	Feb.	1886	25
6	American Flag, S.	Colo.	1,250,000	125,000	10	300,000	Jun.	1877	.25
7	Aspen Mg. & S., S. L.	Colo.	2,000,000	200,000	10				
8	Barcelona, G.	Nev..	5,000,000	200,000	25	*			
9	Battle Creek, G.	Dak..	5,000,000	200,000	25				
10	Bear Creek.	Cal..	300,000	300,000	1				
11	Bechtel Con., G.	Cal..	10,000,000	100,000	100	173,500	n.	1882	.10
12	Belvidere	Cal..		60,000		92,000	b.	1882	.15
13	Belmont, S.	Nev..	5,000,000	50,000	100	730,000	Feb.	1885	.15
14	Best & Belcher, G. S.	Nev..	10,080,000	100,800	100	1,647,790	Jan.	1886	.50
15	Big Pittsburg, S. L.	Colo.	20,000,000	200,000	100	*			
16	Black Jack, G.	Cal..	250,000	100,000	2½				
17	Bonanza Chief	Mon	1,000,000	1,000,000	1	*			
18	Bondholder	Colo	500,000	200,000	2½				
19	Boston Con., G.	Cal..	10,000,000	100,000	100	170,000	Nov	1883	.25
20	Bradshaw, S.	Ariz.	2,250,000	225,000	10				
21	Buckeye	Colo.	2,000,000	400,000	5	*			
22	" preferred.	Colo.				*			
23	Bull Domingo, S. L.	Colo.	10,000,000	200,000	50	*			
24	Bullion, G. S.	Nev..	10,000,000	100,000	100	4,570,000	July	1885	.25
25	Bye and Bye	Ariz.	1,000,000	100,000	10	*			
26	Calaveras, G.	Cal..	500,000	500,000	1	*			
27	Cal. W'r & M. Co., G.	Cal..							
28	Castle Creek, G.	Idah.							
29	Catskill, S.	Nev..	1,500,000	300,000	5				
30	Central Arizona, S.	Ariz.	10,000,000	100,000	100				
31	Cherokee, G.	Cal..	1,500,000	150,000	10				
32	Chollar, S.	Nev..	11,200,000	112,000	100	928,000	Dec.	1885	.50
33	Climax, S. L.	Colo.	2,000,000	200,000	10	*			
34	Colorado No. 2, S. L.	Colo.	100,000	10,000	10				
35	Con. Imperial, G. S.	Nev..	50,000,000	500,000	100	1,050,000	May	1885	10
36	Con. Pacific, G.	Cal..	6,000,000	60,000	100	174,000	Feb.	1886	.15
37	**Cop. Queen Cons, C.	Ariz	1,400 000	140,000	10				
38	Crescent, S. L.	Colo.	3,000,000	300,000	10	*			
39	Crocker, S.	Ariz.	10,000,000	100,000	100	45,000	Mar	1886	.20
40	Crowell, G.	N. C	500,000	5 0,000	1				
41	Dahlonega, G.	Ga...	250,000	250,000	1	*			
42	Dardanelles, G.	Cal..	1,000,000	100,000	10	*			
43	Decatur, S.	Colo.	1,500,000	300,000	5	*			
44	Denver City, S. L.	Colo.	5,000,000	500,000	10	*			
45	Denver Gold.	Colo.	300,000	60,000	5	*			
46	Deseret, G. S.	Utah	500,000	50,000	10	*			
47	Dunderberg, S.	Colo	1,500,000	150,000	10	*			
48	Durango, G.	Colo	500,000	500,000	1	*			
49	Eastern Dev. Co., Lt	N. S.	1,500,000	150,000	10	840,000	May	1885	.10
50	Elko Con., S.	Nev..					Mar	1884	.15
51	Empire Lt., G.	Mon.	500,000	150,000	5				
52	Empire, S.	Utah	10,000,000	100,000	100				
53	Enterprise, S. L.	Colo.	800,000	80,000	10	*			
54	Eureka Tunnel, S. L	Nev..	10,000,000	100,000	100	*			
55	Exchequer	Nev.	10,000,000	100,000	100	840,000	Aug	1885	.20
56	Globe Copper	Ariz							
57	Gold Placer, G.	Colo.	5,000,000	200,000	25	*			
58	Goodshaw, G.	Cal..	10,000,000	100,000	100	229,314	Dec.	1885	.25
59	Grand Belt, C.	Tex.	12,000,000	120,000	100	*			
60	Granville, G.	N. C.		300,000	1				
61	Gregory-Bobtail, G.	Colo.	1 550,000	550,000	1				
62	Harlem M. & M. Co, G.	Cal..	1,000,000	200,000	5				
63	Head Cent. & Tr. S. G	Ariz.	10,000,000	100,000	100				
64	Hidalgo, S.	Mex.	200,000	20,000	10				
65	Highland, C.	Mich	500,000	25,000	25				
66	Hortense, S.	Colo.	2,000,000	20 ,000	10				
67	Iroquois, C.	Mich	1,250,000	50, 000	25				
68	J. D. Reymert.	Ariz	10,000,000	100,000	100	*			
69	Julia Cons., G. S.	Nev..	11,000,000	110,000	100	1,438,000	Nov	1885	.10
70	Kearsarge, C.	Mich		20,000		100,000	Apl.	1886	5.00
71	Lacrosse, G.	Colo.	1 000,000	100,000	10	*			
72	Lee Basin, S. L.	Colo.	5,000,000	500,000	10	*	Sept	1882	.25
73	Leviathan, S.	Nev..	10,000,000	100,000	100	380,000			
74	Lucerne, S.	Colo.	5,000,000	500,000	10	*	Jan.	1885	.10
75	Mammoth Bar., G.	Cal..	10,000,000	100,000	100	50,000	Dec.	1881	
76	Mariposa pref., G.	Cal..	5,000,000	50,000	100	1,687,500	Feb.	1883	.25
77	" common, G.	Cal..	10,000,000	100,000	100	1,975,000	Dec.	1881	.20
78	May Belle, G.	Cal..	10,000,000	100,000	100	84,000	Mar	1884	.15
79	Mayflower, S.	Nev..	1 0,000,000	100,000	100	60,000	Feb.	1886	.25
80	Mexican, G. S.	Nev.	10,000,000	100,800	100	2,540,560			
81	Michoacan Synd.	Mex.							
82	Mine & Starr, S. L.	Colo.	1,000,000	200,000	5	*			
83	Miner Boy, G. S. L.	Colo.	5,000,000	500,000	10	*			
84	Miller	Nev.	5,000,000	200,000	25				
85	Moose Silver, S.	Colo.	3,000,000	300,000	10	*			
86	New Pittsburg, S. L	Colo	2,000,000	200,000	10	*			
87	North Standard, G.	Cal..	10,000,000	100,000	100	20,000	Nov		
88	Noonday	Cal.	600,000	60,000	10	208,000	Dec.	1881	.10
89	Old Dominion, C.	Ariz.	3,000,000	300,000	10				
90	Oriental.	Nev..	2,000,000	200,000	10				
91	Oriental & Miller, S.	Nev..	10,000,000	400,000	25				
92	Overman, G. S.	Nev..	11,520,000	115,200	100	3,685,040	Apl.	1885	.20
93	Parrott, C.	Mon.	1,800,000	180,000	10				
94	Park, S.	Utah	2,000,000	200,000	10				
95	Peer, S.	Ariz.	10,000,000	100,000	100	125,000	Apl.	1886	.10
96	Peerless, S.	Ariz.	10,000,000	100,000	100	225,000	Mar.	1886	.25
97	Potosi.	Nev..	10,200,000	112,000	100	1,011,200	Apl.	1886	.30
98	Rappahannock, G. S.	Va ..	250,000	250,000	1	*			
99	Red Elephant, S.	Colo.	500,000	500,000	1	*			
100	Retort M. & M. Co.	Colo.			10				
101	Robbins, G. S.	Colo.	5,000,000	200,000	25	*			
102	Ropes, G. S.	Mich	2,000,000	80,000	25	63,200	Mar	1886	.10
103	S. P. & Canon del A. C.	N. M.	10,000,000	400,000	25	*			
104	Silver Cliff, S.	Colo.	5,000,000	400,000					
105	Sonora Con.	Mex.	5,000,000	200,000	25	*			
106	South Bodie, G.	Cal..					Mar	1882	.15
107	South Bulwer, G.	Cal..	10,000,000	100,000	100	100,000	May	1881	.25
108	South Hite.	Cal..	10,000,000	100,000	100	195,000	Jan.	1883	.05
109	South Pacific	Cal.		100,000	5				
110	State Line, S.	Nev..	250,000	250,000	1				
111	Sullivan, G. S. L.	Me..	500,000	100,000	5	125,000	Dec.	1882	.25
112	Sutro Tunnel.	Nev..	20,000,000	2,000,000	10	*			
113	Tamarack, C.	Mich.	1,000,000	40,000	25	520,000	Apl	1885	3.00
114	Taylor-Plumas, G.	Cal..	1,000,000	200,000	5	*			
115	Tioga Cons., G.	Cal..	10,000,000	100,000	10	*			
116	Todos Santos, S.	Mex.	1,000,000	100,000	100	325,000	Oct.	1882	.10
117	Tuscarora, S.	Nev..	10,000,000	100,000	100	110,000	Oct.	1881	.15
118	Unadilla, S.	Colo.	50,000,000	500,000	100	*			
119	Union Con., G. S.	Nev..	10,000,000	100,000	100	2,085,000	Apl.	1886	.25
120	Utah, S.	Nev..	2,000,000	20,000	100	1,810,000	Dec.	1881	.50
121	Vandewater.	Nev..	20,000,000	200,000	100	*			
122	Washington.	Ariz.	2,000,000	200, 00	10				
123	Wellington, G.	Nev..	100,000	50,000	2	*			
124	West Granite Mt., S.	Mon.	5,000,000	50,000	10	*			
125	Whalen Copper.	Nev..	2,500,000	100,000	25				
126	Whittier Dr'e Bull'n	Nev..	1,000,000	100,000	10				
127									
128									
129									
130									
131									
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135									

G. Gold. S. Silver. L. Lead C Copper. *Non-assessable. †This company, as the Western, up to December 10th, 1881, paid $1,400,000. ‡Non-assessable for three years. §The Deadwood has previously paid $275,000 in eleven dividends, and the Terra $75,000. ‖Previous to the consolidation of the California and Consolidated Virginia in August,

NEW YORK MINING STOCKS.

DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE.												SALES.
	May 1.		May 3.		May 4.		May 5.		May 6.		May 7.		
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Alice, Mon.					1.50								100
Amie Con., Co.													
Argenta													
Bassick, Co.													
Belle Isle, Ne.													
Bodie Cons., Ca.	1.20		1.25		1 25				2.00	1.65	1.80	1.70	3,400
Breece													
Bulwer, Ca.	1.10	1.00	1.25	1.10	1.70	1.65	2.25	1 90	1.80	1.50	1.55	1.40	8,010
Cal. B. H.					1.00						1.00	.98	1.200
Chollar													
Chrysolite, Co.			2.35	2.25									1,300
Colorado Central			1.40		1.35		1.45		1.35		1.40		6,400
Cons. Cal. & Va., Ne.	1.40												
Crown Point													
Dunkin, Co.											1.00		700
Eureka Cons., Ne.											.90		2,200
Father de Smet, Dk.	1.00	.90	.95	.92	.93	92							
Freeland													
Gold Stripe, Ca.													
Gould & Curry, Ne.	.92										.41		400
Grand Prize, Ne.													300
Green Mountain, Ca.							.34		.35		2.40		900
Hale & Norcross, Ne.	2 30		2.30		2.45				2.40		2.40		1,300
Hall-Anderson, N. S.													
Homestake, Dk.			20.00	19.63	19.50	19.00	20 00						550
Horn-Silver, Ut.			2.50						2.50		2.50		1,700
Independence, Ne.													
Iron Silver, Co.													
Leadville C., Co.			.25						.26				1,700
Little Chief, Co.			.20						.22				3,000
Little Pittsburg, Co.	.25		.28		.28		.30						2,125
Martin White, Ne.													
Moulton													
Navajo, Ne.	.40		.43										2,200
North Belle Isle, Ne.													
Ontario, Ut					29.00								100
Ophir													
Osceola													
Potosi													
Quicksilver Pref., Ca.	20.50												100
" Com., Ca.													
Quincy													
Robinson Cons., Co.													
Savage, Ne.									1.05		1.20		400
Sierra Nevada, Ne.													
Silver King, Ar.					9.00	7.50					9.00		230
Spring Valley, Ca.													
Standard, Ca.											1.00		100
Stormont, Ut.													
Tip Top, Ar.													
Yellow Jacket			.90										200

NON-DIVIDEND-PAYING MINES.

NAME AND LOCATION OF COMPANY.	HIGHEST AND LOWEST PRICES PER SHARE AT WHICH SALES WERE MADE.												SALES
	May 1.		May 3.		May 4.		May 5.		May 6.		May 7.		
	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Albion													
Alta													
American Flag													
Barcelona, g.													
Bechtel Con., g.													
Belvidere													
Belcher													
Best & B'licher, g. s.													
Big Pittsburg, s. L.													
Bowman Silver													
Bull-Domingo, sL.													
Central Ariz'na, s.													
Chollar													
Cons. Imperial													
Con. Pacific													
Cusi													
Decatur													
Durango, G.													
Eastern Oregon													
Goodshaw, g.													
Harlem M. & M. Co.													
Harshaw													
Kossuth													
Lacrosse, G.	.09				.09		.09		.09		.09		12,000
Mariposa Pref., G.													
" Com., G.													
Mexican, G. S.													
Mono	2.45		2.45								2.60	2.55	2,550
New Pittsburg													
North Standard, G.													
N. Horn-Silv'r, s L.													
Pri'nat'l & Miller, s													
Plutus													
Potosi													2,200
Rappahannock, G	.13						.12	.11	.12		.12		9,300
Red Elephant, s.													
Ridge													
Silver Cliff, s.							.04						800
Sonora Con.													
South Bodie, G.													
South Bulwer, G.													
South Hite													
South Pacific													
StateLine, 1 & 4, s.													
" Nos. 2 & 3, s.													
Sutro Tunnel	.11		.12	.11	.12	.11	.13	.12	.13	.12	.13		31,350
Tamarack													
Tioga													
Unadilla, s													
Union Cons., G. s.													
Utah							.09		.20				2,800

Dividend shares sold, 38,615. Non-dividend shares sold, 58,800.

265,584. 1885—Week, 15,699; year, 172,462. Increase, 1886—Week, 1,862; increase, year, 93,122.

Production Bituminous Coal for week ended May 1st, and year from January 1st:

Tons of 2000 pounds, unless otherwise designated.

EASTERN AND NORTHERN SHIPMENTS.

	1886. Week.	1886. Year.	1885. Week.	1885. Year.
Phila. & Erie RR.	3,342	7,370	72	11,238
*Cumberland, Md.	903	374,960	73,527	807,698
*Barclay, Pa.	3,789	68,238	3,274	87,928
*Broad Top, Pa.				
H. & Broad Top RR.	9,890	121,587	3,586	58,394
East Broad Top				
Clearfield Region, Pa.				
Snow Shoe		34,770	1,689	65.680
Karthaus (Keating)	2,000	43.826	1,974	49,251
Tyrone & Clearfield	17,436	591,588	59,547	1,054,540
Alleghany Region, Pa.				
Gallitzin & Mountain	25,441	262,589	10,193	169,102
Total	62,801	1,504,928	153,862	2,303,831

* Tons of 2240 lbs.
† Report not received.

WESTERN SHIPMENTS.‡

Pittsburg Region, Pa.				
West Penn RR.	8,877	98,534	5,959	95,314
SouthwestPenn. RR.	8,327	66,635	2,433	36,658
Pennsylvania RR.	5,431	69,105	4,272	56,000
Westmoreland Region, Pa.				
Pennsylvania RR.	7,640	346,479	3,358	270,546
Monongahela Region, Pa.				
Pennsylvania RR.	10,675	98,928	3,764	65,014
Total	40,950	679,681	19,786	523,532
Grand total	103,751	2,184,609	173,648	2,827,363

Anthracite.

Since our last, the amount of new business done has been a great disappointment, and even such as has been carried through has been largely at prices not up to expectations. This is due to the fact that a very large amount of orders was booked at lower prices, and because many dealers anticipated their wants freely, fearing that a strike might occur on May 1st. Happily, the miners were not so unwise as to force the issue.

Although the widespread influence of the strikes is having its effect upon the coal trade, still we have no reason for changing our belief that this will be a satisfactory year. There is, however, a cloud overhanging this industry. Our long experience has taught us to keep a close look upon Wall Street, as a very powerful influence upon the price of coal. Early in February, the entire trade, excepting a very few insiders, was very bearish upon the coal stocks, and some of its members were backing their views by selling shares that they did not possess. Then followed the announcement of the formation of the Morgan syndicate and a rapid advance of 20 per cent in the price of Delaware, Lackawanna & Western stock, and large advances in the other coal stocks. A great many people in the coal trade sustained losses, while others carried their burden and continue to do so, hoping to come out clear, or with a profit, later on. Of course, when a combination was proposed, there was nothing to do but accept it, with the knowledge that there would be plenty of chances to make it look very shaky before the fall trade set in. Whether the clamoring of stockholders for peace and higher prices will overrule the efforts of those who can disturb the market, remains to be seen.

Late last week, the Pennsylvania Coal Company issued a new circular, advancing prices upon its own responsibility. The sales agents of the other companies called a meeting for the same purpose, but failed to secure the co-operation of the Delaware & Hudson Company, which was not represented at the meeting, and does not seem to have confirmed its action since. The companies present resolved to advance prices 15 cents a ton, and have issued circulars to that effect. It is stated that the Delaware & Hudson Company is dissatisfied because the other companies, and particularly the Delaware, Lackawanna & Western Company, is offering coal at Albany and Troy at the same price it is getting. The trade asks, "Has that company a patent-right on that territory?" It thinks it should be satisfied with its greater profit due to favorable geographical position, and not expect to entirely control any markets that are accessible to many. There is, evidently, some bitter feeling existing between the Delaware, Lackawanna & Western and the Delaware & Hudson Canal companies, which is liable to break out at any time. We are told by good authority, however, that the ill feeling will not be permitted to produce serious acts.

We quote ordinary free-burning coals f. o. b. as follows:

	Week ended May 7.	Week ended April 30.	Week ended April 23.
Lump	$3.00@$3.15	$3.00@	$3.00@ ....
Steamboat	3.00@ 3.15	3.00@	3.00@ ....
Broken	3.00@	3 00@	2.85@$3.00
Egg	2 90@ 3.00	3 00@	2.85@ 3.00
Stove	3.25@ 3.40	3.25@$3 35	3.25@ 3.35
Chestnut	2.85@ 3.00	3.00@	2.85@ 3.00
Pea	2.00@ 2.15	2 25@ 2.50	2.00@ 2.40
Buckwheat	1.75@ 1.85	1.75@ 1.85	1.60@ 1.75
Dust	1.25@	1.25@ 1.30	1.25@ ....

There is a great deal of stove coal in stock, plenty of chestnut, a liberal supply of egg, while broken and the smaller sizes, although still in great request, are not so urgently sought after as they were.

THE PHILADELPHIA & READING COAL AND IRON COMPANY,

GENERAL OFFICE, 227 SOUTH FOURTH STREET,
PHILADELPHIA, May 1, 1886.

On and after this date, and until further notice, the following will be the prices for this company's coal, delivered on board vessels at Port Richmond, Philadelphia, Pa. (for shipment beyond the Capes of the Delaware), and Elizabethport, N. J., subject to our printed conditions of sale:

KINDS OF COAL.	Port Richmond. Egg.	Port Richmond. Stove.	Port Richmond. Chestnut.	Elizabethport, N. J. Egg.	Elizabethport, N. J. Stove.	Elizabethport, N. J. Chestnut.
	$	$	$	$	$	$
Hard white-ash	3.15	3.50	2 85	3.35	3.65	3.00
Free-burning white ash	3.00	3.50	2.85	3.15	3.65	3.00
North Franklin white-ash	3.50	3 50	3.00	3.65	3.65	3.15
Schuylkill red-ash	3.40	3.90	3 20	3.55	4.05	3 55
Shamokin white-ash	3.40	3.90	3.00	3.55	4.05	3.15
Shamokin red-ash	3.50	4.10	3.20	3.65	4.25	3.35
Lorberry	3.50	4.10	3.20	3.65	4.25	3.35
Lykens Valley	4.65	4.85	4.00	4.85	5.00	4.25

Port Richmond: Hard White-Ash, Lump, $4; Steamboat, $4; Broken, $3.15; Pea, $1.80. Free-burning White-Ash, Broken, $3; Pea, $1.80. Lykens Valley, Broken, $4. Elizabethport: Hard White-Ash, Lump, $4.25; Steamboat, $4.25; Broken, $3.35; Pea, $2. Free-burning White-Ash, Broken, $3.15; Pea, $2. Lykens Valley, Broken, $4.15.

Bituminous.

The strike appears to be on its last legs. To-morrow will complete nine weeks of wages thrown away by thousands of workmen, and nine weeks of privation by a greater number of women and children. It is sad to think that only a set of conspirators, composed of unscrupulous leaders, coal operators, and politicians, should have profited by this misery. If, however, the miners will learn by this dear experience, it may not prove an unmixed evil.

Some of the leading operators, who have had to resist the demands of the men, have abundant evidence of the treachery that has been practiced upon the miners, especially by their own leaders, and of the villainous transactions of several of the operators in aiding and abetting the movement. We think that in the interest of humanity they should expose each and every one of those who has, by unfair means, induced or prolonged the contest.

Until this week, the strike, with but slight exceptions, was orderly; but on Wednesday, the Elk Garden miners threw aside all professions of the peaceful and law-abiding character of their organization, and by intimidation and actual violence prevented men, driven by their own sufferings and that of their families, from manfully accepting wages thoroughly satisfactory to themselves. This is a free country and men have a right to strike; but there is equal freedom due to those who want to work, and they must and will be protected in their rights.

All true friends of the miners are urging them to be really free men and assert their manhood in opposition to the dictates of unprincipled leaders. The clergy of both the Clearfield and Cumberland fields is doing much good work at present, and it is to be hoped that its efforts may not prove fruitless. The miners should resume work, because an advance was not justified by the condition of the trade when the demand was first made, and is much less warranted now. The leaders misled them from the start by failing to bring about a complete suspension of the production of bituminous coal, and by furnishing inadequate support. Only the mines producing the best coal, the big vein collieries in the Clearfield and Cumberland regions, have been effectually closed. Do not the miners see that there is a conspiracy between some operators producing inferior coals and the leaders of the miners' organization to permit the former to reap a temporary harvest and force contracts upon consumers for their coal? There is no question that such exists, but it is rapidly expending its efficacy. The market is now abundantly supplied with coal, and steam sizes, which were very scarce three weeks ago, are now in very liberal supply. Bituminous coal, although not plenty, can be obtained at from 75c. to $1 a ton less than it sold for but a very short time ago, and pea, buckwheat, and dust sizes of anthracite coal are showing more of a tendency to decline than to advance in price. The collieries that are working are offering to take contracts for the delivery of coal for a year at prices that will yield no profit, even at the old rate of wages, and it is very evident that they do not intend to make further contributions to support the strike, and that they do not expect to be compelled to pay the advance much longer. Father Schmitt, of Frostburg, in a sermon on Sunday, in which he urged and commanded the miners to resume work, asked, "Can the present source of relief be depended upon?" We think not, and advise the miners to seriously consider his question.

We may further say that the leading steamship and railroad companies are in entire sympathy with the efforts of the bituminous coal companies that are fighting to maintain the old rate of wages, and every consideration is shown them on contracts, and few favors are conferred on those that are encouraging the strike.

The miners are not only losing profitable employment now, but by their action are each day reducing the ability of the companies to give them employment during the remainder of the year.

Buffalo. May 6

[From our Special Correspondent.]

There is no news of interest to report as to the anthracite trade. Prices are to be firmly maintained in strict accordance with the schedule sent you last week. Personally I witnessed the refusal of a well-known dealer to make any concession for a 30 to 40 ton order! The Coal Exchange Committee will be vigilant, and doubtless act with promptitude if any violation is brought to their notice.

No large contracts have been made public, and apparently but few family orders have been given out. There is plenty of time to lay in next winter's stocks; and as consumers do not anticipate any advance unless labor troubles arise, they display no anxiety on the matter.

Buyers of bituminous coal can find all the fuel they want "at prices to suit," at this port, as the unsettled condition of the labor question and strikes do not seem to affect dealers to any appreciable extent. The only difficulty is the inability to provide some special article at times, but the purchaser is generally persuaded that the kind offered as a substitute is equal to if not better than the coal asked for.

The coal shipments by lake from April 21st to May 5th, both days inclusive, aggregated 50,437 tons; namely, 22,200 to Chicago, 5250 to Milwaukee, 4560 to Toledo, 1757 to Racine, 10,090 to Duluth, 680 to Detroit, 1200 to Green Bay, 2700 to Superior City, 600 to Sandusky, and 800 to Sheboygan; total for the season, about 112,000 tons. The engagements reported were for net tons, as follows: 55c. to Green Bay, Sheboygan, and Racine; 50c. to Chicago; 45c. to Milwaukee; 35c. to Superior City; 35c. to Duluth, besides contracts at price not stated; 30c. to Washburn; and 25c. to Toledo, Detroit, and Sandusky.

The only engagements by canal since the opening were the following: 1 load coal to Port Jackson, $1 net, free in and out; 1 load to Syracuse, $1 net, free out; 1 load to Troy, $1.25 net, free in and out; and 1 load to same place, at $1.25 gross, free in and out.

The State canals opened May 1st. From this port, 168 loaded boats cleared on that day; but no coal was included in the charters.

The harbor of Duluth, Minn., on May 3d was blocked for ten miles by ice; but on the 4th, the navigation was opened, vessels arriving and clearing.

The differences between the coal shippers and lake carriers relative to the question of gross or net tons was settled on Saturday last by the former passing a resolution giving the latter the privilege of taking Chicago cargoes at 50c. net or 60c. gross; Milwaukee, at 45c. net or 55c. gross; Detroit and Toledo, 25c. net or 30c. gross ton. The result was a general chartering of vessels at net ton rates, although the carriers were the losers in a pecuniary sense, but the gainers from their stand-point.

No sooner had the differences between the carrier and shipper been adjusted than another difficulty arose. The coal heavers' strike at Chicago is making the shipper very cautious about shipping to that point just now. Several companies refuse to take vessels unless the carriers agree not to ask demurrage. This unfortunate state of affairs tends to cripple the movement of coal Westward by lake.

Mr. Cutler's bill appropriating $200,000 for increasing the lockage capacity of the Erie and Oswego canals was discussed at great length in the Assembly yesterday, and finally passed by a vote of 67 to 51.

About 5000 acres of wild land were bought a few years since in Elk County, Pa., by a Mr. Bagley and others of Pittsburg. A large bed of good coal has been discovered on the property. A number of coke-ovens are to be built, and the product will be shipped over the Buffalo, New York & Philadelphia or the New York, Lake Erie & Western Railroad to our city for distribution.

Coal is shipped from Charlotte and Oswego, Lake Ontario, to Chicago at $1 per gross ton.

Boston. May 5.

[From our Special Correspondent.]

A better state of affairs exists in the anthracite branch of the market. Prices are firm, and while the advance has not been officially announced, as was given out would be the case, yet production for May has been cut down to such a conservative limit that the market is likely to advance by reason of its own strength. The demand is fairly active, but retail dealers in this market have bought quite heavily already, and their stocks are as large as, if not larger than, usual for this time of the year.

Broken coal is the firmest size on the whole list at $3.25@$3.35 f. o. b. at New York. The demand is large from manufacturers, and we expect to see an advance on these figures if the supply of bituminous coal continues to be so greatly restricted as it has been of late. Next to broken, pea coal is the firmest on the list just now, and most shippers have sold production ahead. The nominal selling price is in the immediate vicinity of $2. Pea and dust are still in light movement. There is a very good demand for egg coal, and prices are well maintained at about $3.10@$3.25. Stove and nut sizes are less active, and are in larger supply than any other in the whole list. Asking prices for Stove range from $3.35@$3.40; Nut, $3.15@$3.25.

The great scarcity of bituminous coal is causing a demand for almost any thing that will burn and make steam. A cargo of Scotch coal was eagerly picked up here a few days ago. Some of it was sold and resold three or four times. An endeavor is made to get hold of West Virginia gas-coal, which readily brings $2.80 @$3 f. o. b., the poorer coal only selling at $2.80. As much Nova Scotia coal is brought along as possible. The fact that freights rule from 30 to 50 cents higher to provincial ports than they did a year ago causes the coal to be worth $4.10@$4.25, delivered, for run of mine. Culm of coal is worth $2.75, delivered. Some little Clearfield coal is received, and some Myersdale, for which about $3.50 f. o. b. is paid. The need of coal is urgent, and while relief has been afforded to some, others are clamoring loudly.

There is an easier feeling in freights. We hear of rebates of 5 cents a ton for quick dispatch.

We quote rates exclusive of discharging:

New York, 85@90c.; Philadelphia, $1.05; Baltimore, $1.10@$1.15; Newport News, $1.05@$1.10; Richmond, $1.25; Cape Breton, $1.85@$2; Bay of Fundy, $1.60.

There is nothing new to report in the retail trade.

Pittsburg. May 6.

[From our Special Correspondent.]

The coal market has presented nothing new or important since our last. Shipments by the river have been suspended on account of low water. The boats that left on the last rise have returned, and are ready for the next rise. Shipments for April as follows: Cincinnati, 4,462,000 bushels: Louisville, 5,030,000; total, 9,492,000 bushels.

Prices at Pittsburg: River, wholesale on board, 4@5c. a bushel; Railroad, 4¼@4¾c.

Connellsville Coke, May 1st, prices advanced as follows: Blast-Furnace, $1.50, f. o. b. cars at ovens; Foundry, $1.75; Crushed, $2.25. The ovens are all in operation, producing daily from 1000 to 1100 carloads.

New Orleans. May 4.

[Reported by C. A. MILTENBERGER & Co.]

While the wholesale prices of Pittsburg coal show no change since our last report, we think they have touched bottom, and that the shippers will soon realize that, with all the heavy shipments of coal from the mines within the past sixty days, they have not been able to accumulate sufficient stock to meet all the requirements of the market at this season, and realize the folly of forcing sales of coal at prices that barely give them a new dollar for an old one. It is now getting toward the season when coal-boat water in the Ohio River is not a sure thing, especially after such quantities of rain as fell in that section during March and April, and, while it is yet early to abandon all hope of further shipments of coal, it sometimes happens that after a long, wet time, a continued period of dry weather follows, and this is among the possibilities this season. The stock to-day stands at about the same as at this time last year, while the consumption for the past two months shows a decided increase over that of the corresponding period of 1885.

Wholesale rates are 2c. a barrel lower than in last May, while retail prices are nominally unchanged.

FINANCIAL.

Mining Stocks.

NEW YORK, Friday Evening, May 7.

The mining market has been active, but most of the business was done in a few stocks, which advanced rapidly toward the middle of the week, but declined toward the end.

Sutro Tunnel contributed again the largest share—about one third—to the week's total transactions. The price was firm at from 11@13c. Consolidated California & Virginia was steady at from $1.35@$1.45; and Hale & Norcross at from $2.30@$2.45. Union Consolidated, which shows large sales, advanced from 9@20c.

The feature of the week has been the activity dis-

played in the Bodie stocks. Bulwer Consolidated was very active, going from $1.10@$2.25, but declined again to $1.40, the closing price. Bodie Consolidated ruled in the same manner; the opening price was $1.20, and the closing $1.70; the highest point reached was $2. Mono was firm at from $2.45@$2.60, with sales of some 2550 shares. Among the other California stocks, Green Mountain was quoted at 34 and 35c., and Quicksilver Preferred at $20.50.

The business in Lacrosse continues to be as large as ever; the price remains at 9c. Colorado Central shows sales of 1300 shares, at from $2.35@$2.25. Leadville, Little Chief, and Little Pittsburg all ruled between 20@30c.

The dealings in Homestake, which are generally very quiet and small, have this week been active, some 550 shares, the prices ranging from $19@$20. Father de Smet continues to decline, and went from $1@90c. Caledonia was firm at from $1@98c.

Horn-Silver holds its own at $2.50. A sale of 100 shares of Ontario was made at $29 a share. Silver King has declared its usual monthly dividend of $25,000; the stock remains at from $7.50@$9. Alice shows a sale of 100 shares at $1.50 a share. Rappahannock, 9300 shares at from 11@13c.

The total transactions amounted to 97,415 shares, showing an increase of 21,173 shares, as compared with the transactions of the preceding week.

Coal Stocks.

During the week under review, the stock market has been greatly depressed by strikes, riots, and bloodshed. Although the worst seems to be past, yet there is still much uneasiness among investors. The coal stocks, while not directly affected unfavorably by the strikes, came within the range of possible trouble, and suffered to a marked degree in sympathy with the rest of the market. The dealings in Delaware, Lackawanna & Western aggregated 330,325 shares, at $124⅝@$121, closing at $122¾. Delaware & Hudson, with transactions of 45,616 shares, at $97⅝@$93¾, closed at $95⅞. Reading was dealt in to the extent of 88,125 shares, at $20¼@$23½, closing at $23½. Jersey Central ranged between $48⅝ and $46@$49⅜, closing at $49, with sales of 36,220 shares. The market closed stronger to-day.

The Jersey Central meeting to-day was notable for the expressed determination of the directors to have the road not only out of the hands of a receiver, but also out of the Reading lease, and not to enter into any contracts for operation with any other road for a longer period than a year without the consent of the stockholders.

Delaware, Lackawanna & Western has added greatly to its business by making a ten years' contract with the United Express Company to do its business, which has heretofore been done by the Erie.

At the annual election of the New York, Susquehanna & Western Railroad, yesterday, James M. Hartshorne was substituted on the Board for Charles F. Bound, and S. V. White Vice-President, instead of Alfred Sully.

It is reported that the Morgan syndicate formed for the purpose of reorganizing Reading will give up. This is in some quarters construed as unfavorable to the coal trade. We think that it is really favorable, and that Mr. Gowen will now be permitted to carry out his plan, and remove this very disturbing influence.

Philadelphia & Reading Railroad Company will purchase on and after May 10th the interest and coupons due May 1st of the following divisional coal land mortgage bonds of the Coal and Iron Company, at the rate set opposite the names of the respective tracts in the following table:

NAME OF TRACT.	When due.	Rate per annum at which interest or coupon will be purchased
West Flowery Field	May 1, 1886.	6 per cent.
Big Schall	May 1, 1886.	5 per cent.
Fishing Creek Imp't Co.	May 1, 1886.	5 per cent.
Helfenstein	May 1, 1886.	4 per cent.
Raudenbush, Weaver, *et al*	May 1, 1886.	4 per cent.
Ely & Riehle	May 1, 1886.	4 per cent.

Meetings.

The annual and special meetings of the following companies will be held at the times mentioned:

Gibraltar Mining Company, No. 140 Nassau street, New York City, May 26th, at twelve o'clock M.

Good Return Mining Company, Nos. 127 and 129 William street, New York City, May 17th, at three o'clock P.M.

Milwaukee Iron Mining Company, office of Harvey H. Brown, Cleveland, Ohio, May 26, at eleven o'clock A.M.

Pennsylvania Coal Company, Dunmore, Pa., June 8th, from four to five o'clock P.M.

Pittsburg & Lake Angeline Iron Company, Room 24, No. 101 St. Clair street, Cleveland, Ohio, May 27th, at eleven o'clock A.M.

Dividends.

Boston & Montana Gold Mining Company, of Montana, has declared dividend No. 23, of fifteen cents a share, or $30,000, payable May 20th, at 30 Broad street, New York City.

Imperial Coal Company will pay on demand the interest due May 1st on the bonds, at the office of the Union Trust Company, of Philadelphia.

Lehigh & Wilkes-Barre Coal Company, of Pennsylvania, will pay the 3½ per cent interest on the registered income bonds of this company, issued for funding coupons detached from the consolidated mortgage bonds, on and after the 24th inst., at No. 160 Broadway.

Richmond Consolidated Mining Company, Limited, has declared dividend No. 39, of five shillings a share, free of income tax, payable on and after May 3d in London.

Silver King Mining Company, of Arizona, has declared dividend No. 58, of twenty-five cents a share, or $25,000, payable May 15th, at San Francisco.

ASSESSMENTS.

COMPANY.	No.	When levied.	Delinquent in office.	Day of sale.	Amount.
Belle Isle, Nev.	....	May 6.	.....	.....	.10
Buena Vista Petroleum, Cal	33	Mar. 16	Apl. 20	May 10	1.60
Champion, Cal.	21	Apl. 13	May 20	June 8	.10
Columbia, Dak	....	Mar. 15	Apl. 15	May 15	.01
Con. Amador, Cal.	11	April 7	May 10	May 26	1.00
Darboy, Dak.	1	Apl. 21	May 25	June 15	.01
Enterprise, Dak	11	April 4	May 10	May 28	.01
Eureka Con., Nev.	9	Apl. 20	May 31	June 22	1.00
Golden Prize, Nev	6	Apl. 19	May 21	June 22	.30
Gould & Curry, Nev.	52	Mar. 27	Apl. 30	May 25	.40
Grand Prize, Nev.	18	April 9	May 17	June 7	.40
La Plata, Dak	2	April 7	May 10	May 29	.02
Lucky Hill Con., Nev.	3	April 5	June 7	July 7	.05
Mammoth, Utah	....	Apl. 21	June 10	July 10	.10
Martin White, Nev.	21	Mar. 12	Apl. 20	May 20	.25
McMillen, Ariz.	6	April 9	May 14	June 8	.20
Mutual, Dak	2	Apl. 17	May 20	June 12	.02
Navajo, Nev.	15	Mar. 30	May 4	May 27	.25
Pocahontas, Dak	1	Apl. 15	May 16	June 15	.02
Peer, Ariz	5	Apl. 13	May 20	June 16	.10
Potosi, Nev.	23	Apl. 16	May 20	June 9	.30
Rainbow, Dak	2	April 6	May 8	May 26	¼
Red Warrior, Utah	....	April 6	May 17	June 5	.02
Ruby, Dak	....	Mar. 13	Apl. 24	May 25	⅛
Ruby Hill, Nev	11	Apl. 12	May 12	June 15	.01
Sampson, Utah	....	Apl. 17	May 25	June 26	.25
Silver Hill, Nev	23	Apl. 21	May 27	June 18	.10
Union Con., Nev.	33	Apl. 19	May 26	June 17	.25
West Galena, Dak.	....	Apl. 13	May 29	June 19	¼

COAL STOCKS.

NAME OF COMPANY.	Par value of shares.	Quotations of New York stocks are based on the equivalent of $100. Philadelphia prices are quoted so much per share.												Sales from May 1st to 7th, inclusive.
		May 1.		May 3.		May 4.		May 5.		May 6.		May 7.		
		H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	H.	L.	
Barclay Coal	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Cameron Coal	50	16	.....	16	15⅞	16	.....	15	14⅛	15⅝	15	18	15¾	6,079
Col. C. & I	10	22	21¼	21¼	.....	22	21	.....	.....	23¼	22⅛	.....	.....	1,440
Ches. & O. RR.	100	8	7⅛	8	7	7⅛	.....	.....	.....	7¾	7	7⅛	.....	1,045
Consol. Coal	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Cumb. C. & I.	100	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Del. & H. C.	100	97⅝	96⅛	96¼	95	95½	93¾	95¾	93⅞	96¼	94⅝	95⅞	94¼	45,616
D., L. & W. RR.	50	124⅜	122½	123⅝	121	122½	121⅜	123	121¾	123¼	120¾	122⅞	121	330,325
Elk Lick Coal Co.	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Lehigh C. & N.†	50	50	49¾	49¾	49	49½	....	49½	49⅝	50	.....	.....	.....	2,028
Lehigh Valley RR.†	50	56⅛	56	56	55⅞	56	55¼	55⅝	55½	56	55¾	.....	.....	826
L. & W. C. & I Co.	..	..	..	..	..	..	..	..	..	..	..	..	..	..
Maryland Coal	100	10	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	100
Montauk Coal	100	..	..	..	..	..	..	..	..	..	..	..	..	..
Morris & Essex	50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
New Central Coal	100	.....	.....	10	.....	9	.....	.....	.....	.....	.....	.....	.....	200
N. J. C. RR.	100	48⅝	47⅜	48¼	46⅞	47½	46½	47¼	46	48¼	46½	49⅜	48⅛	36,220
N. Y. & S. Coal	50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Penn. Coal	50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Penn. RR†	50	53⅝	52½	52⅜	51⅞	51⅞	51½	52	51¾	52½	52	.....	.....	9,921
Ph. & R. RR.*	50	21⅝	20½	21⅛	20½	21¼	20¼	21½	20½	22⅜	21⅛	23½	22¼	109,567
Spring Mountain	50	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....	.....
Westmoreland Coal†	50	..	..	..	..	..	..	..	..	..	..	..	..	..

* Of the sales of this stock, 21,442 were in Philadelphia, and 88,125 in New York.
† The quotations for these stocks are not percentage, but actual price.

Total sales, 543,367.

Pipe Line Certificates.

Messrs. Watson & Gibson, brokers in petroleum and stocks, No. 49 Broadway, report for the week as follows:

Oil has been dull on our Exchange and steady. The West was inclined to buy, but the public is apathetic. It is making no resistance to an advance by selling short; so that if no bad well news comes in within a few days, the price may work up.

The Thayer Well No. 2, in Washington County, maintains a large production, but its neighbor, the Gordon No. 4, is relatively small.

The following table gives the quotations and sales at the Consolidated Stock and Petroleum Exchange:

		Opening.	Highest.	Lowest.	Closing.	Sales.
May	1	73¼	73⅜	72¾	73⅜	2,551,00
	3	73⅜	74	72⅝	72⅞	2,940,000
	4	72⅞	73	72⅝	73¼	2,592,000
	5	73	73⅝	72⅞	73½	1,917,000
	6	73¼	74	73	73¼	2,158,000
	7	73½	74¼	73⅜	74⅛	2,933,000
Total sales						15,091,000

San Francisco Mining Stock Quotations.

Daily Range of Prices for the Week.

NAME OF COMPANY.	CLOSING QUOTATIONS.					
	April 30.	May 1.	May 3.	May 4.	May 5.	May 6.
Albion	..	..	..	..	..	..
Alpha	..	..	..	..	..	..
Alta	.20	.20	.20	.20	..	.25
Argenta	..	..	..	..	..	..
Bechtel	..	..	..	..	..	..
Belcher	1.12½	..	..	1.12½	..	..
Belle Isle	..	..	..	..	..	..
Best & Belcher	.95	.95	.90	1.12½	1.00	1.12½
Bodie	1.25	1.25	1.25	1.50	1.75	1.75
Bullion	..	..	..	..	..	..
Bulwer	1.00	1.25	1.75	2.25	1.87½	1.75
Challar	.70	.65	.65	.70	.80	.90
Con. Pacific	.40	.45	..	.50	.50	.55
Con. Cal. & Va.	1.37½	1.37½	1.25	1.37½	1.25	1.37½
Crown Point	..	..	..	..	.85	..
Day	..	..	..	..	..	..
Elko Cons	..	..	..	..	..	..
Eureka Cons	1.12½	1.00	1.12½	1.12½	1.12½	1.25
Exchequer	..	..	..	..	..	..
Gould & Curry	.95	.90	.85	1.00	1.00	1.12½
Grand Prize	..	..	..	..	..	..
Hale & Norcross	2.12½	2.12½	2.00	2.12½	2.37½	2.37½
Independence	..	..	..	..	..	..
Martin White	..	..	..	..	..	..
Mexican	..	.35	.30	.30	.40	.45
Mono	2.25	..	2.37½	2.50	2.50	2.50
Mount Diablo	..	..	..	..	..	..
Navajo	.35	.35	.35	.35	..	.40
Northern Belle	..	..	..	..	..	..
North Belle Isle	..	..	..	..	..	..
Ophir	..	..	.45	.55	.60	.60
Overman	..	..	..	..	..	..
Potosi	.50	.50	.50	.60	.70	.70
Savage	.95	.95	.80	.95	.95	1.00
Scorpion	..	..	..	..	..	..
Sierra Nevada	.35	.35	.30	.35	.35	.45
Silver King	..	..	..	..	..	..
Tip-Top	..	..	..	..	..	..
Union Cons	.20	.20	.20	.20	.25	.25
Utah	..	..	..	..	..	..
Wales Cons	..	..	..	..	..	..
Yellow Jacket	..	..	.60	..	..	.60
..	..	..	..	..	..	..

Boston Copper and Silver Stocks.

[From our Special Correspondent.]

BOSTON, May 6.

The market for mining stocks the past week, like its predecessors, has been exceedingly dull and inactive, with a drooping tendency. The demand for ingot cop-

Unlisted Stocks and Foreign Quotations.

We give below the most reliable quotations obtainable for unlisted stocks and quotations on outside and foreign exchanges :

NAME OF COMPANY.	Location.	Price.	Where quoted.
Adams, s. L.....	Colo..	$4@$5	Unlisted
Bellevue, s. L.....	Idaho.	$5	Unlisted
Big Bend H'd'lc, G.	Dak ..	$5	Unlisted
Bird's Eye Creek, G.	Cal. ..	$5.62½@$6.25	London
Bonanza King, G	Cal. ..	$10	Unlisted
California, G...	Colo..	50@75c.	London
Colo. United, s. L...	Colo..	$12.50@$15 75	London
Eb'rh'dt & Mon't'r,s	Nev..	$2.00@$2.25	London
Elkhorn, G. s.....	Mont .	$10	Unlisted
Golden River, G	Cal...	$116 *	Paris
" Parts Civiles	Cal...	$46 *	Paris
Granite Mt., s.....	Mont .	$24@$24.50	St. Louis
Helene, G. s. L. C...	Mont .	$2	Helena
Honorine, s. L.... ..	Utah .	75c.	Unlisted
Iron Hill, s.....	Dak ..	$5	Deadwood
Kohinoor & Donaldson, G. s.	Colo..	50@62c.	London
La Plata, s. L.... ..	Colo..	$1.25@$1.50	London
La Trinidad, s.....	Mex ..	$22.50@$23.75	London
Lexington, G. s.....	Mont .	$12	Paris
" Org'niz'rs' shares	Mont .	60c.	Paris
Montana, Lt., G. s..	Mont .	$40.62½@$41.87½	London
New Albion, G.....	N. S..	$4.50@$5.00	London
New Emma, s.....	Utah .	$1.12@$1.37	London
New Hoover Hill,G.s	N. C..	$1.00@$1.25	London
Plumas Eureka, G..	Cal ...	$2.50@$3 75	London
Richmond Con..s. L	Nev ..	$28.12½@$29.37½	London
Ruby & Dunderberg, G.....	Nev...	$1.25@$1.50	London
Russell Gold, G. ...	N. C ..	75c.@$1.00	London
Sierra Buttes, G ...	Cal ...	$6.87½@$8.12½	London
Silver Queen United, s..... ...	Mex ..	$10.00@$10.62½	London
Small Hopes, s	Colo ..	$7.00	St. Louis
St. Joseph's, L	Mo....	$7@$7.50	Unlisted
United Mexican, s.‡	Mex ..	$15.62½@$16.87½	London

Foreign quotations are per mail advices.

* The above quotations were given July 5th, 1885. Since then, there have been no quotations. ‡ New issue.

per is light, and this has its effect on the stock market, and until the labor troubles are settled, we can hardly expect to see much improvement. Calumet & Hecla dropped from $225 to $223, on sales of about 20 shares, while in Tamarack there was not a sale for the week. Quincy was a little more active, about 250 shares changing hands at $50⅝@$50. Franklin was also a little heavy, and declined on sales of 300 shares to $12. Osceola went off from $14½@$13¾, with sale of 50 shares at the latter price. Allouez sold at $1 (300 shares). Pewabic, 50 shares at $1½. Total sales of copper stocks for the week, 975 shares, against 738 last week.

In silver stocks, we note no improvement, and prices continue to drop. Boston & Montana sold at $6, a decline of $¾ from the last sale. Napa Quicksilver sold at 95c., same as before.

At the Mining Exchange, there is but little doing. Bowman Silver declined to 10c. Duncan, to 24c. Catalpa, to 23c. "Cusi" sold at 55c. Breece, at 22½c.

SPECIAL NOTICES.

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	27		6.29	15.58	41.85	72 48	98 23	125.82
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	33		7.45	18.55	49.81	86.28	116.93	149.17
	36	3	8.05	20.04	53.80	93.18	126.28	161.10
	39		8.58	21.37	57.38	99.38	134.68	171.82
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	78	6½	14.84	36.81	98.84	171.17	231.97	295.95
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	96	8	17.28	42.99	115.42	199.87	270.81	345.61
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